ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 471

[OW-FRL-2513-8]

Nonferrous Metals Forming and Iron and Steel/Copper/Aluminum Metal Powder Production and Powder Metallurgy Point Source Category; Effluent Limitations Guidelines, Pretreatment Standards, and New Source Performance Standards

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed regulation.

SUMMARY: EPA is proposing effluent limitations guidelines and standards 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) from particular nonferrous metals forming and iron and steel/copper/aluminum metal powder production and powder metallurgy 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, best available technology, and best conventional technology; new source performance standards based on best demonstrated technology; and pretreatment standards for existing and new indirect discharges. After considering comments received in response to this proposal, EPA will promulgate a final rule.

DATES: Comments on this proposal must be submitted by May 4, 1984.

ADDRESSES: Send comments to: Dr. Thomas E. Fielding, Effluent Guidelines Division (WH-552), U.S. Environmental Protection Agency, 401 M Street, SW., Washington, DC 20460, Attention: Nonferrous Metals Forming Comments. Technical information and copies of technical documents may be obtained from Dr. Thomas E. Fielding, Effluent Guidelines Division (WH-552), U.S. Environmental Protection Agency, 401 M Street, SW., Washington, DC 20460 or call 202/382-7156. The economic analysis report may be obtained from Dr. Joseph Yance, Economic Analysis Staff (WH-586), U.S. Environmental Protection Agency, 401 M Street, SW., Washington, DC 20460, or call 202/382-5379.

FOR FURTHER INFORMATION CONTACT: Dr. Thomas E. Fielding, 202/382-7156.

SUPPLEMENTARY INFORMATION:

Overview

This preamble describes the legal authority and background, the technical and economic bases, and other aspects of the proposed regulations. The abbreviations, acronyms, and other terms used in the Supplementary Information section are defined in Appendix A to this notice.

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 Nonferrous Metals Forming and Iron and Steel/Copper/Aluminum Metal Powder Production and Powder Metallurgy Point Source Category* (EPA 440/1-84/019-b). The Agency's economic analysis is found in *Economic Analysis of Proposed Effluent Limitations and Standards for the Nonferrous Metals Forming Indsutry* (EPA-440/2-84-005).

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.

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, Pub. 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), *modified* by orders of October 26, 1982, August 2, 1983, and January 6, 1984.

II. Background

A. The Clean Water Act and the Settlement Agreement

The Federal Water Pollution Control Act Amendments of 1972 established a comprehensive program to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters," Section 101(a). By July 1, 1977, existing industrial dischargers were required to achieve "effluent limitations requiring the application of the best practicable control technology currently available" ("BPT"), Section 301(b)(1)(A). By July 1, 1983, these dischargers were required 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 301(b)(2)(A). New industrial direct dischargers were required to comply with Section 306 new source performance standards ("NSPS"), based on best available demonstrated technology; and new and existing dischargers to publicly owned treatment works ("POTW") were subject to pretreatment standards under Sections 307 (b) and (c) of the Act. The requirements for direct dischargers were to be incorporated into National Pollutant Discharge Elimination System ("NDPES") permits issued under Section 402 of the Act. Pretreatment standards were made enforceable directly against dischargers to POTWs (indirect dischargers).

Although Section 402(a)(1) of the 1972 Act authorized the setting of requirements for direct dischargers on a case-by-case basis, Congress intended that, for the most part, control requirements would be based on regulations promulgated by the Administrator of EPA. Section 304(b) of the Act required the Administrator to promulgate regulations providing guidelines for effluent limitations setting forth the degree of effluent reduction attainable through the application of BPT and BAT. Moreover, Sections 304(c) and 306 of the Act required promulgation of regulations for NSPS, and Sections 304(f), 307(b), and 307(c) required promulgation of regulations for pretreatment standards. In addition to these regulations for designated industry categories, Section 307(a) of the Act required the Administrator to promulgate effluent standards applicable to all dischargers of toxic pollutants. Finally, Section 501(a) of the Act authorized 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 dates contained in the Act. In 1976, EPA was sued by several environmental groups, and in settlement of this lawsuit, EPA and the plaintiffs executed a "Settlement Agreement" which was approved by the District Court. This Agreement required EPA to develop a program and adhere to a schedule for promulgating for 21 major industries BAT effluent limitations guidelines, pretreatment standards, and new source performance standards for 65 "priority" pollutants and classes of pollutants. See *Natural Resources Defense Council, Inc.* v. *Train*, 8 ERC 2120 (D.D.C. 1976), *modified*, 12 ERC 1833 (D.D.C. 1979), modified by additional orders of October 26, 11982, August 2, 1983, and January 6, 1984.

On December 27, 1977, the President signed into law the Clean Water Act of 1977. Although this law makers several important changes in the Federal water pollution control program, its most significant feature is its incorporation into the Act of several of the basic elements of the Settlement Agreement program for toxic pollution control. Sections 301(b)(2)(A) and 301(b)(2)(C) of the Act now require the achievement by July 1, 1984 of effluent limitations requiring application of BAT for "toxic" pollutants, including the 65 "priority" 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 pretreatment standards are now aimed principally at toxic pollutant controls. Moreover, to strengthen the toxics control program, Section 304(e) of the Act authorizes the Administrator to prescribe "best management practices" ("BMP") to prevent the release of toxic and hazardous pollutants from plant site runoff, spillage or leaks, sludge or waste disposal, and drainage from raw material storage associated with, or ancillary to, the manufacturing or treatment process.

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 mentioned specifically in Section 304(a)(4) (biochemical oxygen demanding pollutants (BOD_5) total suspended solids (TSS), fecal coliform, and PH), and any additional pollutants defined by the Administrator as "conventional." (To date, the Agency has added one such pollutant, 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*, 669 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 that BPT.

EPA published its methodology for carrying out the BCT analysis on August 29, 1979 (44 FR 50372). 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. 47 FR 49176. This methodology has been applied to each of the subcategories in the nonferrous metals forming point source category and is discussed in Section XIV of today's notice.

For non-toxic, nonconventional pollutants, Sections 301 (b)(2)(A) and (b)(2)(F) require achievement of BAT effluent limitations within three years after their establishment or July 1, 1984, whichever is later, but not later than July 1, 1987.

The purpose of these proposed regulations is to provide effluent limitations guidelines for BPT, BAT and BCT, and to establish NSPS, pretreatment standards for existing sources (PSES), and pretreatment standards for new sources (PSNS), under Sections 301, 304, 306, 307, and 501 of the Clean Water Act.

B. Prior EPA Regulations

EPA has not previously proposed or promulgated regulations for the Nonferrous Metals Forming Point Source Category.

C. Overview of the Category

Because of the diversity of the nonferrous metals industry, EPA has divided it into different segments for regulation. This proposed regulation

only covers nonferrous metals forming operations; nonferrous metals manufacturing operations are covered under separate regulations, 40 CFR Part 421, (nonferrous metals manufacturing phase I, proposed at 46 FR 7032, February 17, 1983, to be promulgated shortly, nonferrous metals manufacturing phase II, scheduled for proposal shortly). The nonferrous metals forming category is generally included within SIC 3356, 3357, 3463, and 3497 of the *Standard Industrial Classification Manual,* prepared in 1972 and supplemented in 1977 by the Office of Management and Budget, Executive Office of the President. The category includes establishments engaged in the forming of nonferrous metals and their alloys, except for copper and aluminum for which separate regulations have recently been promulgated. 40 CFR Part 468 (48 FR 36942, August 15, 1983), 40 CFR Part 467 (48 FR 49126, October 24, 1983). For regulatory convenience, this point source category also includes metal powder production and powder metallurgy of iron and steel, copper, and aluminum, as well as alloys of these metals (except that metal powders produced as an intergral part of a smelting or refining operation are covered under 40 CFR Part 421, nonferrous metals manufacturing or 40 CFR Part 420, iron and steel). Wastewater discharges covered by the nonferrous forming point source category are not subject to regulation under 40 CFR Part 413 (electroplating) or 40 CFR Part 433 (metal finishing).

Forming is the deformation of a metal into specific shapes by hot or cold working. The major forming operations include rolling, extruding, forging, and drawing. Monor forming operations in this category include cladding, and metal powder production and powder metallurgy (except for metal powders produced as an integral part of a smelting or refining operation). Associated operations performed as an integral part of the forming process are also included in the nonferrous metals forming category. These operations are casting for subsequent forming, heat treatment, surface treatment, alkaline cleaning, solvent degreasing, sawing, grinding, tumbling, burnishing, and product testing. Wastewater streams associated with air pollution controls on nonferrous metals forming and related operations are also included in this point source category.

The nonferrous metals forming category covers forming operations performed on 31 nonferrous metals and their alloys. The Agency did not identify any other nonferrous metals (except for copper and aluminum, which are already regulated, as noted above) that are subjected to forming operations. Alloys are considered as only one metal type. The metal type of any particular alloy is defined to be the metal that is the major component is percent by weight. Thus, an alloy which is 53 percent lead and 47 percent zinc is considered as lead, and an alloy which is 40 percent nickel, 35 percent zinc, and 25 percent tim is considered as nickel. Forming of an alloy containing greater than 50 percent iron, steel, copper, or aluminum is not included in the category since these are covered by the Iron and Steel, Copper Forming, and Aluminum Forming Point Source Category Effluent Limitations Guidelines and Standards, respectively.

EPA studied 294 nonferrous metals forming plants distributed throughout the United States, with the majority located east of the Mississippi River. Of these plants, 146 discharge process wastewater, 32 directly to surface water (direct dischargers), 107 to POTWs (indirect dischargers), and seven both directly and to POTWs. The remaining 148 plants do not discharge process wastewater.

As a result of the study of nonferrous metals forming plants, nine of the 31 metal types of the catgory are proposed for exclusion under Paragraph 8 of the Settlement Agreement. EPA proposes to exclude these metal types from regulation because the forming operations performed on these metals do not use process water and therefore there are no discharges of proces wastewater. In addition to the pure metals, alloys of these nine are also excluded from regulation.

The remainder of this overview briefly describes operations included in and products manufactured by the nonferrous metals forming category. The Development Document describes these operations in greater detail.

Rolling transforms cast ingot by exerting pressure as the metal passes between rollers, reducing the thickness and cross-sectional area of the metal. Hot rolling, sometimes referred to as "breakdown" rolling, may be followed by cold rolling to further reduce thickness. Square ingots are usually rolled to produce rod, bar, or wire. A cooling and lubricating compound may be used during rolling to prevent excessive wear on the rolls, to prevent adhesion of metal to the rolls, and to maintain a suitable uniform rolling temperature. Oil-water emulsions are used for this purpose in hot rolling, while most cold rolling operations use mineral oil or kerosene-based lubricants. The rolls used in the rolling operations require periodic machining to remove metal build-up in an operation called roll grinding. The common lubricant used in this operation is an oil-water emulsion which is recirculated and discharged periodically with other emulsion waste streams.

Extrusion is the application of force to a billet causing the metal to flow through a die orifice. The resulting product is an elongated shape or tube of uniform cross-sectional area. Heat treatment is frequently performed after extrusion. At some plants, the extrusion is cooled by direct contract with water as it leaves the press. This is called press heat treatment.

Forging is deforming metal, usually hot, with compressive force into desired shapes, with or without dies. Colloidal graphite in either a water or an oil medium may be sprayed onto dies as a lubricant.

Drawing refers to the pulling of metal through a die or succession of dies to reduce its diameter, alter the cross-sectional shape, or increase its hardness to produce rod, wire, or reduced diameter tubing. To ensure uniform drawing temperatures and avoid excessive wear on the dies and mandrels, a suitable lubricant is applied during drawing. A wide variety of lubricants, including oil-based lubricants, oil-water emulsions, and soap solutions or powders are used for this purpose. Drawing oils are usually recirculated until their lubricating properties are exhausted.

Heat treatment is frequently used both in-process and as a final step in forming to give the nonferrous metal the desired mechanical properties. The general types of heat treatment applied are: homogenizing, annealing, solution heat treatment, and artificial aging. Homogenizing, annealing, and aging are dry processes, while solution heat treatment typically involves significant quantities of contact cooling water.

The quenching techniques used in solution heat treatment are usually critically to achieving the desired mechanical properties. Contact cooling water is commonly used to quench solution heat-treated products. The process is usually performed by immersing the formed products into a water bath, but spray or flush quenching is also used. Air, glycol, or alcohol-water solutions can also be used to cool certain products.

All surface treatment operations performed as an integral part of the forming process are considered to be within the scope of the nonferrous metals forming category.

The most common surface treatments are designed to remove the surface layer of oxidized metal created during the forming of nonferrous metals at elevated temperatures. Acid etching or pickling, the most common deoxidizing surface treatment, is used on many metal types. Molten salt (480–540° C) is also used to remove oxide scale from nickel alloys. Usually formed metal is dipped into a surface treatment bath and then rinsed by dipping in an overflowing bath or spraying with clear water. The surface treatment rinses are the major source of wastewater in the nonferrous metals forming category.

Other surface treatments are used to clean metal surfaces, alkaline cleaning being the most common method. The alkalinr cleaning solutions, usually detergents, vary in pH and chemical composition. Inhibitors are frequently added to minimize or prevent corrosion of the metal. Alkaline cleaners are used to remove lard, oil, and other such componds, but mineral oil and grease are not removed. Nonferrous metal products can be cleaned with an alkaline solution either by immersion or spray. Rinsing, preferably with warm water, may follow the alkaline cleaning process to prevent the solution from drying on the product.

Solvent cleaners are used to remove oil and grease compounds from the surface of metal products. Vapor degreasing, the predominant method of solvent cleaning, uses the hot vapors of chlorinated solvents to remove oils, greases, and waxes. Trichloroethylene, 1,1,1-trichloroethane, and perchloroethylene are the solvents most commonly used. Vapor degreasing solvents are frequently recovered by distillation, which does not usually generate process wastewater.

Some surface treatments use mechanical means to alter the surface of formed nonferrous metals. Machining, grinding, polishing, and sawing operations commonly use a recirculated oil-water emulsion to cool and lubricate the contact between the metal and finishing tool. Spent or rancid lubricant is discharged periodically.Tumbling, or barrel finishing, is used to clean and debur large quantities of small formed parts, usually forgings and parts pressed from metal powder. Parts are finished by tumbling with abrasive suspended in water.

Only casting which is an integral part of nonferrous metals forming, i.e., shot-casting and casting of billets, ingots, bars, and strip which are subsequently formed on-site, is included in the category. The method of casting most widely practiced at nonferrous metals forming plants is stationary or pig casting which allows for recycle of in-house scrap. In this process, molten metal is poured into cast iron molds and allowed to air cool. Lubricants and cooling water are not required. Although water may be sprayed onto the molten metal to increase the cooling rate, this generally does not result in any discharge.

Direct chill is another method of casting nonferrous metals for subsequent forming. The molten metal is tapped from the melting furnace and flows through a distributor channel into a shallow mold. Noncontact cooling water circulates within this mold causing the metal to solidify. The base of the mold is attached to a hydraulic cylinder which is gradually lowered as pouring continues. As the solidified metal leaves the mold, it is sprayed with contact cooling water to reduce the temperature of the ingot. The cylinder continues to lower into a tank of water, further cooling the ingot as it is immersed. When the cylinder has reached its lowest position, pouring stops and the ingot is lifted fron the pit.

Arc casting is a form of direct chill casting used for metals with melting points too high to easily cast by conventional techniques (tungsten, molybdenum, tantalum, columbium, vanadium, and rhenium). The end product of refining these metals is a powder which can be compacted and sintered into solid bars. The bars serve as consumable electrodes in an arc-melting process.

Nonferrous metals forming plants also use continuous casting to produce sheet, bar, and strip. Most of the various continous casting methods use a water spray to cool the cast metal.

Cladding operations are included in the nonferrous metals forming category. A clad metal is a composite metal containing two or more layers that have been bonded together. The bonding may have been accomplished by roll bonding (co-rolling), solder application (brazing), or explosion bonding. In the roll bonding process, a permanent bond between two metals is obtained by rolling under high pressure in a bonding mill. Clad metals consisting of a base metal with an overlay or inlay or precious metal are produced for the electrical/electronics industry and for jewelery applications (e.g., gold-filled wire). In the solder applications or brazing process, a thin layer (film or foil) of a low melting point metal is place between two layers of metal to be bonded. The three-layer assembly is then placed into a furnace at the melting temperature of the filler metal. Bonding results from the intimate contact produced by the dissolution of a small amount of the base metal and the top metal in the molten filler metal, without direct fusion of the two metal layers. Upon cooling, the clad material can then be formed by any of the forming operations previously described. The term soldering is used where the temperature falls below 425° C (800° F). The term brazing is used where the temperature exceeds 425° C (800° F). The metallurgical joining of two or more metals can also be accomplished by the force of a carefully detonated explosion.

All of the cladding processes described above are essentially dry processes. The main source of process wastewater in metal cladding operations is in cleaning the metal surfaces prior to bonding.

Production of metal powders, ferrous and nonferrous, in operations which do not significantly increase their purity is included in this nonferrous metals forming category.

Of all metal powders produced, iron, stainless steel, and copper powders are produced in the largest quantities and by the greatest number of manufacturers. There is a high demand for these metal powers because of their large-scale applications in the auto manufacturing and machining industries. Atomization is the most common method of producing metal powders. In this process, a stream of fluid (water or gas) impinges upon a molten metal stream, breaking it into droplets which solidify as powder particles. Water atomization is used to produce irregularly shaped particles, required for powder metallurgy operations in which a powder is cold pressed into a compact. Powders are also produced by disintegration of solid metal into powder by mechanical comminution.

Metal powders are formed into parts by a "press and sinter" operation, consisting of blending metal powders, compacting the mixture in a die, and then heating or sintering the compacted powder in a controlled atmosphere to bond the particles into a strong shape. Noncontact cooling water is the only water used in this operation. Parts formed from metal powders can be subject to the chemical and mechanical surface treatments previously described. Tumbling is the most common surface treatment used and the major source of process wastewater.

Products manufactured by nonferrous metals forming operations generally serve as stock for subsequent fabricating operations. Because the metals included in this category have a wide range of physical, chemical, and electrochemical properties, they are

used in a wide range of fabricated products. For example:

—Beryllium, used in aerospace applications because of its high strength and light weight, is rolled into sheet products. Because it is difficult to cast, it is commonly consolidated into billets by powder metallurgy techniques.

—Bismuth has a low melting point and thus is rolled into strip for use in fuses. When alloyed with lead, tin, and/or cadmium, it is also extruded and drawn into solder wire.

—Cobalt is often alloyed with nickel, and is formed by the same methods used to form steels. It is used for applications requiring strength and corrosion resistance at high temperatures, such as turbine blades.

—Hafnium is formed into control rods for nuclear reactors because of its special properties.

—Lead is extruded and swaged into bullets because it is dense and inexpensive. When alloyed with tin and bismuth it is extruded into solder, an application which makes use of its low melting point. Lead is formed into cases for automobile batteries because of its electrochemical properties.

—Magnesium is extruded into cases for batteries used in portable communications equipment. The application takes advantage or the metal's electrochemical properties and light weight.

—Nickel is often alloyed with chrome and iron to make stainless steel alloys, many greater than 50 percent nickel. It is formed by all major forming operations and is used in applications requiring corrosion resistance at high temperatures, such as tubing for steam and gas turbines and in jet engines.

—Precious metals (silver, gold, platinum, and palladium) are corrosion-resistant and good electrical conductors, but expensive. Because of their expense, they are often used as a thin layer clad to a layer of base metal (usually copper or nickel) which is rolled into strip and stamped into electrical contacts. Pure and clad precious metals are also drawn to wire used to fabricate jewelry. Their corrosion resistance makes than useful in dentistry.

—Refractory metals (columbium, molybdenum, rhenium, tantalum, tungsten, and vanadium) must be formed at high temperatures (relative to other metals) or as powders because they have melting points above 1,960° C. Their unique properties make them useful for specialized applications. Columbium is used as a structural material in nuclear reactors. Molybdenum is drawn into semiconductor wires. Tantalum used in very small capacitors and heat transfer and furnace equipment. Tungsten finds wide application as filaments for electric light bulbs. As tungsten carbide, it is used in cutting tools and abrasives because of its extreme hardness.

—Tin is used in solder, usually alloyed with lead.

—Titanium, used in aerospace applications because of its high strength and light weight, is formed by all major forming techniques. It is also used for corrosion-resistant hardware and surgical implants.

—Uranium, when composed of 0.2 to 0.3 percent 235 (the fissionable isotope), is called depleted uranium. This material is extruded into armor piercing projectiles because it is extremely dense.

—Zinc is lightweight and corrosion-resistant. It is rolled into sheet for architectural uses and stamped into pennies. Its chemical properties make it useful for battery cases and lithographic plates.

—Zirconium is used to clad nuclear fuel rods in water cooled reactors and as a construction material in chemical plants because of its high melting point and corrosion resistance. It is extruded into tubes and rolled into plate and sheet.

III. Scope of This Rulemaking and Summary of Methodology

This proposed regulation is a part of the Agency's continuing effort in water pollution control requirements. The 1973–1976 round of rulemaking emphasized the achievment of best practicable technology (BPT) by July 1, 1977. In general, this technology level represents the average of the best existing performances of well-known technologies for control of familiar (or "classical") pollutants.

In this round of rulemakings, EPA is establishing both nationally applicable BPT effluent limitations guidelines and nationally applicable effluent limitations guidelines based on the best available technology economically achievable (BAT), which will result in reasonable further progress toward the national goal of eliminating the discharge of all pollutants. In general, this technology level represents the very best economically achievable performance in any industrial category or subcategory. The Act requires achievement of BAT by July 1, 1984. As a result of the Clean Water Act of 1977, the emphasis of EPA's program generally shifted from "classical" pollutants to the control of a lengthy list of toxic substances. The Agency is also establishing best conventional technology (BCT), new source performance standards, and categorical pretreatment standards in this round of rulemakings.

In developing this regulation, EPA studied the nonferrous metals forming category to determine whether differences in raw materials, final products, manufacturing processes, equipment, age and size of plants, water use, wastewater constituents, or other factors required the development of separate effluent limitations and standards for different segments (or subcategories) of the industry. This study included the identification of raw waste and treated effluent characteristics, including: The sources and volume of water used, the processes employed, and the sources of pollutants and wastewaters. Sampling and analysis of specific waste streams enabled EPA to determine the presence and concentration of toxic pollutants in wastewater discharges.

EPA also identified both actual and potential control and treatment technologies (including both in-process and end-of-process technologies). The Agency analyzed both historical and newly generated data on the performance, operational limitations, and reliability of these technologies. In addition, EPA considered the impacts of these technologies on air quality, solid waste generation, water scarcity, and energy requirements.

The Agency then estimated the costs of each control and treatment technology using cost equations developed by standard engineering analyses. EPA derived unit process costs for 23 discharging plants, representative of the entire category. These costs were derived using data and characteristics (production and flow) applied to each treatment process (e.g., chemical precipitation, sedimentation, granular bed—multi-media filtration, etc.) and were added to yield the total plant cost at each treatment level. The Development Document gives in detail the method used to extrapolate the costs for each subcategory from the costs estimated for the 23 representative plants. The Agency intends to conduct a plant-by-plant cost analysis prior to final promulgation to refine the cost estimates for each subcategory.

After confirming the reasonableness of this methodology by comparing EPA cost estimates to treatment system costs supplied by the industry, the Agency

evaluated the economic impacts of these costs.

On the basis of these factors, EPA identified various control and treatment technologies as BPT, BAT, BCT, NSPS, PSES, and PSNS. The proposed regulation, however, does not require the installation of any particular technology. Rather, it requires achievement of effluent limitations equivalent to those achieved by the proper operation of these or equivalent technologies.

Except for pH requirements, the effluent limitations for BPT, BAT, BCT, and NSPS are expressed as mass limitations—a mass of pollutant per unit of production (mg/kkg). They were calculated by using three figures: (1) Treated effluent concentrations determined by analyzing control technology performance data; (2) production-weighted wastewater flow for the operations in each subcategory; and (3) any relevant process or treatment variability factor (e.g., mean versus maximum day). This basic calculation was performed for each regulated pollutant or pollutant parameter for each operation of each subcategory. 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 only is not appropriate because it will not ensure that the effluent reduction benefits associated with reduced water use are realized. Therefore, the Agency is not proposing concentration-based effluent limitations guidelines or standards.

IV. Data Gathering Efforts

The data gathering program is described in Sections III and V of the Development Document. A data collection portfolio (dcp) was developed to collect information about the industry and was mailed out in 1983, under the authority of Section 308 of the Clean Water Act, to each company known or believed to be engaged in forming in the United States the metals discussed in Section III of this notice. Analytical data were collected from 17 sampled plants. Supplemental data were obtained from NPDES permit files and engineering studies on treatment technologies.

EPA reviewed and evaluated existing literature for background information to clarify and define various aspects of the nonferrous metals forming category and to determine general characteristics and trends in production processes and wastewater treatment technology. Review of current literature continued throughout the development of these guidelines.

A listing of plants believed to be in the nonferrous metals forming category was compiled from a Dun and Bradstreet computer listing, publications, telephone contacts with various trade associations believed to represent parts of the industry, the Thomas Register, and telephone contacts with commodity specialists at the Bureau of Mines. Four SIC codes were used resulting in the indentification of approximately 1,000 plants as being possibly engaged in nonferrous metals forming activities. The SIC codes used were: (1) 3350: Rolling, Drawing, Extruding of Nonferrous Metals; (2) 3357: Drawing and Insulating Nonferrous Wire; (3) 3463: Nonferrous Forgings; and (4) 3497: Metal, Foil and Leaf.

A comprehensive telephone survey was undertaken in order to determine which plants should comprise a final dcp mailing list, i.e., whether or not in-scope forming operations were present at each of the plants on the original list. A comprehensive list of those plants believed to be a part of the category was then compiled in preparation for dcp distribution.

On April 19, 1983, these 365 dcp's were sent out under the authority of Section 308 of the Clean Water Act to companies on the mailing list. The dcp's were sent to the corporate office of each company and addressed to the highest ranking corporate official who could be identified.

An additional 47 dcp's were sent out on June 21, 1983 when the Agency decided to include metal powder production and powder metallurgy operations of all metals, including iron and steel, copper, and aluminum, in the scope of the category. All but five of these dcp's were sent to companies which had been sent a nonferrous metals forming dcp earlier. Between April 19, 1983 and July 11, 1983, seven more dcp's were sent out, as additional facilities believed to be in the category were identified. All companies were allowed 30 days from receipt of the dcp in which to complete and return the portfolio.

In all, dcp's were sent to 377 firms. Approximately 95 percent of the companies responded to the survey. In many cases, companies contacted were not actually members of the nonferrous metals forming category as it is defined by the Agency. Where firms had nonferrous metals forming operations at more than one location, a dcp was returned for each plant. A total of 294 dcp's applicable to the nonferrous metals forming category were returned. In cases where the dcp responses were incomplete or unclear, additional information was requested by telephone or letter.

The dcp's requested information regarding plant size, age and production; the production processes used; and the quantity, treatment, and disposal of wastewater generated at these plants. The dcp's also requested economic information including plant capacity, employment, sales, and existing regulatory costs for the base year of 1981. In addition, frequent contact has been maintained with industry personnel throughout the regulation development process. Contributions from these sources were particularly useful for clarifying differences in production processes.

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, we sampled and analyzed nonferrous metals forming wastewaters for conventional and nonconventional pollutants as well as inorganic and organic toxic pollutants. 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)).

The primary objective of the field sampling program was to produce composite samples of wastewater from which to determine the concentrations of toxic pollutants. During this program, 17 plants were sampled. These plants were selected to be representative of the industry, based on information obtained during the telephone survey. Considerations included how well each facility represented the subcategory as indicated by available data, potential problems in meeting technology-based standards, differences in production processses used, and wastewater treatment-in-place. With the exception of the uranium forming subcategory, at least one plant in every subcategory was sampled. Some plants provided data for more than one subcategory.

The only data available from uranium forming plants are self-monitoring data, which included the toxic metals

cadmium, copper, and nickel only. We have no data on the other toxic pollutants. The Agency intends to obtain data on toxic pollutants in wasterwater at uranium forming plants after proposal. In addition, the Agency sampled one plant each in the beryllium forming and zinc forming subcategories but the results of the analyses for toxic organic pollutants in these two subcategories are not yet available. We will add the results of the analyses for all three of these subcategories to the record of rulemaking when they become available and consider these data in promulgating the final effluent limitations and standards. We have no reason to expect that the presence of toxic organic pollutants in these three subcategories would be any different than in the other eight subcategories where only insignificant amounts were found. We invite comments and data on the presence of toxic organic pollutants in nonferrous metals forming wastewater.

After selection of the plants to be sampled, each plant was contacted by telephone, and a letter of notification was sent to each plant as to when a visit would be expected. In most cases, a preliminary visit was made to the plant to select the sources of wastewater to be sampled at each plant. The sample points included, but were not limited to, untreated and treated discharges, process wastewater, partially treated wastewater, and intake water.

The samples were analyzed for 21 metals, including seven of the priority metal pollutants (beryllium, cadimum, chromium, copper, nickel, lead, and zinc) using inductively-coupled argon plasma emission spectroscopy (ICAPES) as proposed in 44 FR 69464, December 3, 1979. The remaining six priority metal pollutants, with the exception of mercury, were analyzed by atomic absorption spectroscopy (AA) as described in 40 CFR Part 136. Mercury analysis was performed by automated cold vapor atomic absorption. Analysis for the seven toxic metals analyzed by ICAPES was also performed by AA on 10 percent of the samples to determine test comparability. Because the results showed no significant differences in detection or quantification levels, ICAPES data were used for the seven toxic metals.

EPA did not expect to find any asbestos in nonferrous metals forming wastewaters because this category only includes metals that have already been refined from any ores that might contain absestos. Therefore, analysis for asbestos fibers was not performed.

Pesticide priority pollutants were also not expected to be significant in the nonferrous metals forming industry. Samples from one facility were anaylzed for pesticide priority pollutants by electron capture-gas chromatography by the method specified in 44 FR 69464, December 3, 1979. Pesticides were not detected in these samples, so no other samples were analyzed for these pollutants.

Analyses for the remaining organic priority pollutants (volatile fraction, base/neutral, and acid compounds) were conducted using an isotope dilution method which is a modification of the analytical techniques specified in 44 FR 69464, December 3, 1979. The isotope dilution method has been recently developed to improve the accuracy and reliability of the analysis. this method is described in the Development Document and a copy of the method is in the record of rulemaking for this proposed regulation. However, no standard was used in the analysis of 2, 3, 7, 8-tetrachlorodibenzo-p-dioxin (TCDD, pollutant 129). Instead, screening for this compound was performed by comparing analytical results to EPA's gas chromatography/mass spectroscopy (GC/MS) computer file.

Analysis for cyanide used methods specified in 40 CFR Part 136 and described in "Methods for Chemical Analysis for Water and Wastes," EPA-600/4-79-020 (March 1979).

Analyses for conventional pollutants (BOD_5, TSS, pH, and oil and grease) and nonconventional pollutants (acidity, alkalinity, total solids, total dissolved solids, ammonia, total phosphorus, total organic carbon, total phenolics, and sulfate) were also performed by the methods specified in 40 CFR Part 136 and described in EPA-600/4-79-020.

VI. Industry Subcategorization

A. Subcategorization

In developing this regulation, it was necessary to determine whether different effluent limitations and standards were appropriate for different segments (subcategories) of the industry. Technology-based effluent limitations are based primarily upon the treatability of pollutants in wastewaters generated by the category under review. The treatability of these pollutants is, of course, directly related to the flow and characteristics of the untreated wastewater, which in turn can be affected by factors inherent to a manufacturing plant in the category. Therefore, these factors and the degree to which each influences wastewater flow and characteristics form the basis for subcategorization of the category, i.e., those factors which have a strong influence on untreated wastewater flow and characteristics are applied to the category to subcategorize it in an appropriate manner.

The Agency considered the following subcategorization factors: metal formed and raw materials used, manufacturing processes, products manufactured, process water use, water pollution control technology, treatment costs, solid waste generation, size of plant, age of plant, location of plant, number of employees, total energy requirements, nonwater quality characteristics, waste streams produced, and unique plant characteristics. EPA concluded that the metals formed and manufacturing processes used were the most meaningful factors on which to base the subcategorization of this category.

A comprehensive analysis of each factor that might warrant separate limitations and standards for different segments of the industry is presented in Section IV of the Development Document. The Agency proposes the following subcategorization scheme for proposal of BPT, BCT, and BAT effluent limitations guidelines and NSPS, PSNS, and PSES:

Beryllium Forming
Lead/Tin/Bismuth Forming
Magnesium Forming
Nickel/Cobalt Forming
Precious Metals Forming
Refractory Metals Forming
Titanium Forming
Uranium Forming
Zinc Forming
Zirconium/Hafnium Forming
Iron and Steel/
Copper/Aluminum
Metal Powder Production and Powder Metallurgy

Forming of lead, tin, and bismuth have been combined into a single subcategory since these three metals represent the components of most solder alloys and it is difficult for solder makers to report production for individual alloys. Since most of the solder makers produce some solder products with each of the three metals as the major component in percent by weight, a grouping of these three metals is justified.

Forming of nickel and cobalt have been combined into a single subcategory because 15 of the 16 surveyed plants which form cobalt alloys also form nickel alloys by identical or very similar operations, generating commingled wastewaters of similar characteristics. Also, the metals are often alloyed with each other, making reporting of production of individual metals difficult.

The precious metals subcategory includes the forming of gold, silver, palladium, and platinum. Combining

these metals into a single subcategory is justified because all of the precious metals are usually formed at any single plant.

The refractory metals subcategory includes the forming of the high melting temperature metals tungsten, molybdenum, tantalum, columbium, rhenium, and vanadium. Combining these metals into a single subcategory is justified because all of the refractory metals are usually formed at any single plant.

The zirconium/hafnium subcategory includes the forming of both zirconium and hafnium because both are usually formed at any single plant.

The iron and steel, copper, and aluminum metal powder production and powder metallurgy subcategory covers manufacturing activities involved in producing metal powders as a product and in producing finished parts from metal powders of iron and steel, copper, and aluminum only. These manufacturing activities, when performed on other metal types, are covered under the specific metal type subcategories.

B. Production Normalizing Parameter Selection

The objective of effluent limitations and standards is to reduce the total quantity of pollutants discharged into surface waters. Because plants could attempt to meet a concentration-based standard by dilution rather than treatment, mass limitations have been developed for the nonferrous metals forming industry. In order for regulations to be equitable for plants with large productions and small productions, the mass limitations must be normalized by an appropiate unit of production called a production normalizing parameter (PNP). That is, pollutant discharge limitations are written as allowable mass of pollutant discharge per PNP (kg/PNP).

Therefore, for a PNP to be appropriate, kg/PNP must be independent of both production and wastewater volume, for a particular waste stream. Mass of metal, number of pieces, surface area, and mass of process chemicals used were considered as possible PNPs. An evaluation of these alternatives follows.

Mass of Metal Processed. The nonferrous metals forming category typically maintains production records of the pounds of metal processed. Availability of these production data and lack of data for other production parameters, such as number of pieces produced, makes this the most convenient parameter to use. The nonferrous metals forming dcp requested three production values: the capacity production rate for specific unit operations, the average production rate for 1981 in off-lbs/hr, and the total off-pounds of final product formed in 1981. The PNP for each operation is based on the average production rates in off-lbs/hr reported in the dcp.

Number of Pieces Processed. The number of pieces processed by a given plant would not account for the variations in size and shape typical of formed products. Forgings, for instance, are produced in a wide range of sizes. It would be unreasonable to expect the quenching of a large forging to use the same amount of water required for a smaller forged product and yield a constant mass of pollutant per piece. Therefore, the Agency concluded that the number of pieces processed is not an appropriate PNP.

Surface Area of Metal Processed. Surface area may be an appropriate production normalizing parameter for formed metal which has been rinsed (i.e., the mass of pollutants generated may correlate with surface area). Where surface area phenomena are involved, such as cleaning and pickling rinses, the use of surface area as a PNP may be the appropriate parameter. However, other phenomena, such as cooling, are unrelated to surface area. Hence, surface area might be adequate for some processes but would be wholely inappropriate for others. In addition, the area of metal processed is not generally kept or known by industry. In some cases, such as forging of miscellaneous shapes, surface area would be very difficult to determine. In any case, surface area data would be difficult to collect. For these reasons, surface area is an inappropriate PNP for the nonferrous metals forming category.

Mass of Process Chemicals Used. The mass of pollutants discharged is more dependent on the processes which the metal undergoes than on the amount of process chemical used in the process. Some operations, such as heat treatment with water, generate pollutants but do not use any process chemicals. In addition, the use of this parameter as the production normalizing parameter would tend to discourage regeneration and reuse of process chemicals. For these reasons, mass of process chemicals used is an inappropriate PNP for the nonferrous metals forming category.

The Agency has selected mass of product formed as the most appropriate PNP. The mass of pollutants can be related to the mass of metal processed and most companies keep production records in terms of mass.

The PNP for nonferrous metals forming is "off-kilograms" or the kilograms of product removed from a machine at the end of a process cycle. For example, in the rolling process, an ingot enters the mill to be processed. Following one process cycle which may substantially reduce the ingot's thickness, the metal is removed from the rolling mill where it may be processed through another operation, such as annealing, sizing, or, cleaning, or it may simply be stored before being brought back to the rolling mill for another process cycle, further reducing the thickness. The mass of metal removed from the rolling mill after each process cycle multiplied by the number of process cycles is the PNP for that process.

The dcp's indicate that a number of nonferrous metals forming operations do not generate process wastewater. For those operations, the PNP is zero, and EPA is proposing a discharge allowance of zero for each of those operations.

The Agency also is proposing a PNP of zero discharge for one waste stream, tube reducing spent lubricant, because analysis for toxic organics at the one plant sampled (in the nickel/cobalt forming subcategory) showed treatable concentrations of N-nitrosodiphenylamine. That waste stream has a small flow and can be most economically handled by intercepting the waste stream before mixing it with other process wastewaters and disposing of it as a solid waste under the Resource Conservation and Recovery Act, 42 U.S.C. 6901 *et seq.* Treatment of the wastes with activated carbon after mixing with other process wastewaters would be much more expensive. The Agency recognizes that the total amount of N-nitrosodiphenylamine discharged in the tube reducing spent lubricant is only a few pounds per year, but believes the potentially carcinogenic properties of nitrosamines justifies prohibiting its discharge. We invite comment and data on the no discharge requirement for this waste stream.

VII. Available Wastewater Control and Treatment Technology

A. Control and Treatment Technologies Considered

The control and treatment technologies available for this category include both in-process and end-of-pipe treatments. These technologies are considered appropriate for the treatment of nonferrous metals forming wastewaters and form the basis of the regulatory options. These control and

treatment technologies are discussed in greater detail in Section VII of the Development Document.

In-process treatment includes a variety of water flow reduction steps and major process changes. The following in-process treatments are considered for this proposal:

Recycle. Recycling or process water is the practice of treating and returning water to be used again for the same purpose. EPA considered partial recycle of process water by using cooling towers and holding tanks. In doing so, we considered that it may be necessary to discharge a bleed stream to purge dissolved and suspended solids that tend to accumulate in the system. We also considered recycle of the water used in wet scrubbers.

Countercurrent cascade rinsing. Countercurrent cascade rinsing is a mechanism commonly encountered in metal processing operations. The cleanest water is used for final rinsing of an item, preceded by rinse stages using water with progressively more contaminants to partially rinse the item. Clean make-up water is added at the final rinse and contaminated rinse water is discharged from the initial rinse stage. The make-up water for all but the final rinse is from the following rinse stage.

End-of-pipe treatment includes modules used to reduce pollutant concentrations prior to discharge. The following end-of-pipe treatments are considered for this proposal:

Chemical Precipitation. Chemical (hydroxide) precipitation generally involves adjusting the pH and adding a flocculating agent to precipitate out of solution metal ions (i.e., copper) and certain anions (e.g., fluoride). The chemical commonly associated with this treatment is lime, but other alkalis can also be used. Lime must be used to control fluoride. This technology will remove a broad range of ions from solution. Thus, if chemical precipation is used to control regulated pollutants, nonregulated metals will be controlled as well.

Sedimentation. Sedimentation is a process which removes solid particles from a liquid matrix by gravitational force. This is done by reducing the velocity of the feed stream in a large volume tank or lagoon so that gravitational settling can occur. This treatment when combined with chemical precipitation is referred to as lime and settle treatment in this preamble.

Ammonia Steam Stripping. Steam is commonly used to evaporate ammonia from process wastewater. Generally, the steam is introduced into a separation column countercurrent to the process wastewater. The evaporated ammonia is absorbed into the steam. It is usually necessary to elevate the pH of the wastewater in order to remove ammonia.

Cyanide Oxidation or Precipitation. With the addition of oxidizing agents or complexing agents cyanide can either be oxidized or complexed. Cyanide can also be precipitated out of solution using ferrous sulfate. Cyanide precipitation removes both the oxidizable and nonoxidizable parts of the total cyanide in the wastewater.

Chromium Reduction. The addition of a strong reducing agent produces a chemical reaction reducing hexavalent chromium to trivalent chromium. The reduction is necessary for removal of chromium from solution in conjunction with other metallic salts by chemical precipitation.

Oil Skimming. Oil and other materials with a specific gravity less than water often float unassisted to the surface of wastewater. Skimming removes these floating wastes. This is done by reducing the velocity of the wastewater in a large volume tank to allow low specific gravity material to rise. The floating layer is skimmed off while the remaining wastewater flows out a lower outlet. A variety of devices is used to remove the floating layer from the surface.

Chemical Emulsion Breaking. Chemical emulsion breaking is used to break stable oil and water emulsions. By adding chemicals, and adjusting the pH, the oil to water attraction induced in the emulsion is diminished thus allowing the oil fraction to separate and float on the water fraction where it can be skimmed off.

Multimedia Filtration. Gravity mixed-media filtration may be used as an end-of-pipe polishing step for further removal of metal hydroxide precipitates and other suspended solids. Rapid sand filters would perform as well but are generally used with higher water flows than are commonly encountered in the nonferrous forming industry.

We considered other, more advanced technologies which are described in Section VII of the Development Document. However, none of these technologies was selected as the technology basis for BPT, BAT, BCT, NSPS, PSES, or PSNS for this industry because the technologies are not demonstrated and are quite expensive.

B. Status of In-Place Technology

Current wastewater treatment practices in the nonferous metals forming category range from no treatment to treatment with chemical precipitation, sedimentation, and filtration. Of the 146 discharging plants, 46 use chemical precipitation and sedimentation to remove metals and suspended solids. Two of the 46 plants have equipment for multimedia filtration and 10 of the 46 plants have a secondary sedimentation step. The Agency's screening sampling data from three of those 10 plants and long-term data from a fourth plant indicates that these plants are achieving metal hydroxide and suspended solids removal equivalent to multimedia filtration.

Many plants in the nonferrous metals forming category do not discharge any process wastewater because they only use dry processes that do not generate wastewater. EPA is not proposing allowable discharge limitations or standards for these processes. Other processes used in the nonferrous metals forming industry do generate wastewater, however. EPA is today proposing effluent limitations and standards for these wet processes.

C. Control and Treatment Options Considered

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

Option 1—End-of-pipe treatment consisting of lime precipitation and sedimentation, and preliminary treatment, where necessary, consisting of oil skimming, cyanide precipitation, chromium reduction, ammonia steam stripping, and chemical emulsion breaking. This combination of technology reduces toxic metals and conventional and nonconventional pollutants.

Option 2—Option 2 is equal to Option 1 preceded by flow reduction of process wastewater through the use of countercurrent cascade rinsing, cooling towers for contact cooling water, and holding tanks for all other process wastewater subject to recycle.

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

VIII. Summary of Generic Issues

EPA has identified several issues that are generic to many of the subcategories and to the limitations and standards proposed in today's notice. These issues are discussed in this secion.

A. *Building Blocks.* The regulations proposed today use the so-called building block approach, whereby EPA considers both end-of-pipe treatment technologies and process changes and controls within the plant prior to discharge to a common end-of-pipe

treatment system. This approach is preferable because it allows regulations to be tailored to reflect particular circumstances. This examination, of course, is mandated by the Clean Water Act. See, e.g., Sections 304(b)(2)(A) and 306(a)(1).) As a result, the proposed regulation identifies principal process steps that discharge wastewater, determines what wastewater flows (and in some cases, pollutant concentrations) are permissible for this indigenous operation, and establishes a mass-based limitation or standard for each such step ("building block"). These limitations (or standards) then are added together to give the permissible mass-based discharge for the entire process.

Under the building block approach proposed today, to determine the allowable discharge from a point source, a discharger must first identify the specific process sources that comprise that discharge. Then the discharger should multiply the limitations or standards (mg/kkg) for each wastewater present in the plant, shown today in 40 CFR Part 471, by the production of that source (kkg), in the units specified, to yield the mass discharge from each source. The mass from all of the sources should then be added to yield the maximum for any one day and the maximum monthly averages for that discharge point. Waste streams (both process and nonprocess) not identified in today's notice may be regulated on a case-by-case basis by the permit writer pursuant to the authority granted in Section 402.

We stress that a plant is to receive a discharge allowance for a particular building block *only if it is actually operating that particular process.* The plant need not be discharging wastewater from the process to receive the allowance, however. For example, if the regulation contains a discharge allowance for wet scrubber effluent and a particular plant has dry scrubbers, it cannot include a discharge allowance for wet scrubbers as part of its aggregate limitation. On the other hand, if it has wet scrubber and discharges less than the allowable limit (or does not discharge from the scrubbers), it could receive the full regulatory allowance. In this way, the building block approach recognizes and accommodates the fact that not all plants use identical processes in forming a given metal.

Building Block Approach Applied to Integrated Facilities. There are many facilities within this category that have integrated manufacturing operations; that is, they combine wastewater from forming operations, which are part of this point source category, with wastewater from other manufacturing operations which are not a part of this category, and treat the combined stream prior to discharge. Indirect dischargers that are integrated facilities are subject to discharge standards as specified by the "combined waste stream formula" set forth at 40 CFR 403.6(e). In establishing direct discharge permit requirements for integrated facilities subject to effluent guidelines that are mass-based for each category, the permit writer can apply the same building block approach discussed above, simply aggregating each allowable discharge.

The building block approach is only to be used when the individual discharger combines wastewater from various processes and co-treats the wastewater before discharge through a single discharge pipe. The building block approach allows the determination of appropriate effluent limitations for the discharge point by combining appropriate limitations based upon the various processes that contribute wastewater to the discharge point.

In establishing limitations for integrated facilities for which a portion of the plant is covered by concentration-based limitations, the permit writer can determine the appropriate mass limitations for the entire facility or point source as follows. The portion of the wastewater covered by this category receives mass limitations according to the building block methodology described above. The permit writer must then determine an appropriate flow for the portion of the facility subject to concentration-based limitations and multiply it by the concentration limitations to yield mass limitations. The mass limitations applicable to the discharge are obtained by summing these two sets of mass limitations.

The Agency recognizes that there may be different technology bases for the limitations and standards applicable to an integrated facility. EPA developed these limitations based on specified in-plant controls and end-of-pipe treatment technologies; however, it does not require that the facility implement these specific in-plant controls and end-of-pipe technologies. The facility combining wastewater from manufacturing operations covered by categories with different technology bases must install technology and modify the manufacturing operations so as to comply with the mass limitations calculated using the building block approach.

B. *Data Bases to Determine Achievable Concentrations and Variability Factors for Hydroxide Precipitation-Sedimentation and for Filtration.* As discussed in Section VII of this preamble, hydroxide precipitation-sedimentation and filtration were considered as a part of various treatment options for BPT, BAT, BCT, NSPS, PSES, and PSNS. The methods of determining achievable concentrations and variability factors used to compute monthly average and daily maximum concentrations are discussed for these technologies below.

Hydroxide Precipitation-Sedimentation. In considering the performance achievable using hydroxide (usually lime) precipitation-sedimentation of metals with and without polishing filtration, EPA evaluated data from nonferrous metals forming plants and plants in other categories with similar wastewater. The data base we selected for lime precipitation and sedimentation (lime and settle) without filtration is the revised combined metals data base (CMDB). This data base is a composite of data for nine pollutants from wastewaters treated by lime and settle technology drawn from EPA sampling and analysis of wastewaters from copper forming, aluminum forming, battery manufacturing, porcelain enameling, and coil coating categories. These wastewaters are similar to nonferrous metals forming wastewater in all material respects because they contain the same dissolved metals at comparable concentrations that can be removed uniformly by precipitation and solids removal.

We regard the combined metals data base as the best available measure for establishing the concentrations attainable with hydroxide precipitation and sedimentation for nonferrous metals forming industry. Our determination is based on the general similarity of limited data on nonferrous metals forming raw and treated wastewaters to the CMDB (as determined by statistical analysis for homogeneity (see Chapter VII of the Development Document)), and the larger number of plants in the CMDB (18 plants versus seven nonferrous metals forming plants available), and the extensive engineering and statistically-based evaluation that CMDB has undergone in response to comments and issues raised in various other rulemakings for related metals industries where the Agency has relied on the CMDB. The general quality and quantity of data in the combined metals data base, as well as a greater variety of influent concentrations, enhances the Agency's ability to estimate long-term performance and variability for lime and

settle treatment technology through statistical analysis.

We view the use of the combined metals data base as appropriate for nonferrous metals forming plants because properly operated hydroxide precipitation and sedimentation (lime and settle) will result in effluent concentrations that are directly related to pollutant solubilities. These effluent concentrations are known as the treatment effectiveness of lime and settle technology. Since the nonferrous metals forming raw wastewater matrix contains the same toxic pollutants at concentrations of the same order of magnitude as the combined metals data base raw wastewater and the technology is solubility-based, we believe the mean treatment process effluent and variability will be identical. We also do not believe any interfering properties (such as chelating agents) exist in nonferrous metals forming wastewater that would interfere with metal precipitation and so prevent attaining concentrations calculated from the combined metals data base.

We also are proposing limits based on this technology for certain pollutants not included in the combined metals data base. Treatment effectiveness for silver and antimony are calculated from nonferrous metals manufacturing data because many nonferrous metals forming plants are also nonferrous metals manufacturers and combine the wastewater from both processes for common treatment. Therefore, it is reasonable for the Agency to assume that nonferrous metals forming plants with lime and settle treatment will achieve the same effluent concentrations that are achieved for those two pollutants at nonferrous metals manufacturing plants. No treatment effectiveness concentrations are available for columbium, hafnium, magnesium, molybdenum, tantalum, titanium, uranium, vanadium, and zirconium, metals which are proposed for limitation in some subcategories. We believe that lime and settle technology wil result in effluent concentrations of these metals of not more than 0.50 mg/l. This estimate is based on the ability of the lime and settle technology to reduce the concentration of the majority of the metals in the combined metals data base to this value or less. Sampling data from one nonferrous metals forming plant with significant titanium concentrations in the raw waste show that lime and settle treatment achieved a titanium effluent concentration of 0.5 mg/l or less at that plant. The Agency intends to obtain additional data on treatment effectiveness for these metals after proposal.

Filtration. The pollutant concentrations achievable with lime precipitation, sedimentation, and polishing filtration are based on data from three plants with that technology in place: one nonferrous metals manufacturing plant and two porcelain enameling plants. These three plants provide extensive long-term data. We believe tht the use of polishing filtration data from porcelain enameling plants is justified because the pollutants and pollutant concentrations in porcelain enameling and in non ferrous metals forming wastewaters are similar. We know this because data from porcelain enameling was included in the combined metals data base, which we have determined to be homogeneous with data from nonferrous metals forming. We believe that use of polishing filtration data from the nonferrous metals manufacturing plant is justified because many nonferrous metals forming plants are also nonferrous metals manufacturing plants and combine the wastewaters for treatment. Therefore, it is reasonable for the Agency to assume that polishing filters treating nonferrous metals forming wastewaters from lime ands settle treatment and nonferrous metals manufacturing wastewaters from lime and settle treatment will achieve the same effluent concentrations.

We solicit comment on our use of the combined metals data base for nonferrous metals forming, the transfer of data from the nonferrous metals manufacturing category, and treatment effectiveness values assumed for some metals. We specifically request submission of additional treatment effectiveness data from nonferrous metals forming plants using properly operated lime and settle and lime, settle and filtration systems.

C. *pH.* We are proposing pH limitations of 7.5 to 10. These levels vary somewhat from the pH limitations of 6 to 9 in guidelines for most other subcategories. We are proposing the higher range to allow for proper performance of the lime precipitation and sedimentation technology in this industry. The technology generally requires a wastewater pH of 8.8 to 9.3 (depending on wastewater compositions) to achieve optimum precipitation of some metals. Because a pH limitation of 6 to 9 might require pH adjustment of wastewater properly treated by lime precipitation and sedimentation technology, a higher pH limitation has been set.

D. *Frequency of Sampling to Demonstrate Compliance With 30-Day Average Limitations.* The proposed regulation establishes monthly average limitations that are based on the average of 10 consecutive sampling days (not necessarily consecutive calendar days). The 10-day average value was selected as the minimum number of consecutive samples because it approximates the most frequent monitoring requirements 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 permit writers in writing direct discharge permits.

E. *Compliance Date for PSES.* Section 307(b)(1) of the Act requires that the date for compliance with PSES be no more than three years from the regulation's final promulgation date. Few indirect dischargers in this category have installed and are properly operating the treatment technology proposed as the basis for PSES. The readjustment of internal processing conditions to achieve reduced wastewater flows may require further time above installation of end-of-pipe treatment equipment. Many plants in this and other industries also will be installing the treatment equipment suggested as model technologies for this regulation which may result in delays in engineering, ordering, installing, and operating this equipment. Under these circumstances, we believe that three years is the appropriate compliance deadline under Section 307(b)(1) of the Act. We invite comment on the appropriateness of this compliance date.

F. *Recycle of Wet Scrubber and Contact Cooling Wastewater.* We are proposing BAT and PSES limitations for most subcategories based on 90 percent recycle of wet air pollution control and contact cooling wastewater (we have proposed limitations based on a higher rate for certain subcategories where reported rates of recycle are even higher). Water is used in wet air pollution control systems to capture particulate matter or fumes generated during the forming of nonferrous metals and associated operations. Cooling water is used to remove excess heat from metal products.

We observed extensive recycle of these streams throughout the industry. Indeed, some plants reported 100 percent recycle of process wastewater from these operations. The Agency believes, however, that most plants may have to discharge a portion of the recirculating flow to prevent the buildup

of dissolved solids. The Agency believes based on the data submitted in dcp's that through operation of cooling towers with a discharge of 10 percent of the recirculating flow, contact cooling water and scrubber water can be reused while controlling scale formation and equipment corrosion, and maintaining product quality.

We solicit comments on the ability of nonferrous metals forming plants to achieve 90 percent recycle of wet scrubber liquor and contact cooling wastewater.

IX. Best Practicable Technology (BPT) Effluent Limitations

The factors considered in defining best practicable control technology currently available (BPT) include the total cost of applying the technology in relation to the effluent reduction benefits derived, the age of equipment and facilities involved, the processes employed, nonwater quality environmental impacts (including energy requirements), and other factors the Administrator considers appropriate. In general, the BPT level represents the average of the best existing performances of plants of various ages, sizes, processes, or other common characteristics. Where existing performance is uniformly inadequate, BPT may be transferred from a different subcategory or category. Limitations based on transfer technology must be supported by a conclusion that the technology is, indeed, transferable and a reasonable prediction that it will be capable of achieving the prescribed effluent limits. See *Tanners' Council of America* v. *Train*, 540 F.2d 1188 (4th Cir. 1976). BPT focuses on end-of-pipe treatment rather than process changes or internal controls, except where such are common industry practice.

The cost-benefit inquiry for BPT is a limited balancing, commited 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 in relation to effluent reduction benefits, 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 pollution control level. The Act does not require or permit consideration of water quality problems attributable to particular point sources or industries, or water quality improvements in particular water bodies. Accordingly, water quality considerations were not the basis for selecting the proposed BPT. See *Weyerhaeuser Company* v. *Costle*, 590 F.2d 1011 (D.C. Cir. 1978).

In developing the proposed BPT limitations, the Agency considered the amount of water used per unit production in each waste stream. These data were used to determine the average (mean) water discharge for each subcategory operation. Aberrant flows were excluded from mean calculations. Since the proposed BPT limitations were based on the average water discharge, plants with greater than average discharge flows may have to implement some method of flow reduction in order to achieve the effluent limits of BPT.

Next, we evaluated the appropriate treatement technology for BPT treatment. The proposed BPT level treatment for each subcategory was based on the average of the best existing performance currently demonstrated throughout that subcategory. As stated above, BPT was based on end-of-pipe treatment technologies except in those instances where a process change or internal control is common practice in the subcategory.

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 selected option technology by the regulatory flow established for each waste stream.

The proposed BPT effluent mass limitations for all 11 subcategories are based on Option 1 technology (lime precipitation and sedimentation; and preliminary treatment, where necessary, consisting of oil skimming, ammonia stripping, cyanide precipitation, chromium reduction and chemical emulsion breaking) to remove toxic metals, oil and grease, and TSS. This technology is currently in place at 24 of the 39 direct dischargers in the category. The conventional pollutants specifically regulated in all 11 subcategories at BPT are oil and grease, TSS, and pH. Appendix B lists all the pollutants specifically regulated at BPT in each subcategory. Specific effluent mass limitations have been developed for each of these pollutants.

The proposed BPT will result in the removal of an estimated 19,300 kg (42,500 pounds) of toxic pollutants per year from estimated current discharge levels. The estimated capital investment cost of BPT is $2.91 million and the estimated annual cost is $1.59 million in 1982 dollars. These costs represent wastewater treatment equipment not currently in place.

We do not project any plant closures or unemployment as a result of meeting the BPT limitations. The Agency has determined that the pollutant reduction benefits associated with compliance justify the costs.

More stringent technology options were not selected since they would require in-process changes or end-of-pipe technologies which are not widely practiced by plants in the category and, therefore, are more appropriately considered under BAT.

X. Best Available Technology (BAT) Effluent Limitations

The factors considered in assessing best available technology economically achievable (BAT) include the age of equipment and facilities involved, the process employed, process changes, nonwater quality environmental impacts (including energy requirements) and the costs of applying such technology (Section 304(b)(2)(B) of the Clean Water Act). At a minimum, the BAT technology level represents the best economically achievable performance of plants of various ages, sizes, processes, or other shared characteristics. As with BPT, where the Agency has found the existing performance to be uniformly inadequate, BAT may be transferred from a different subcategory or category. BAT may include feasible process changes or internal controls, even when not in common industry practice.

The required 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 cost. The Agency has considered 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 determinant of BAT is still effluent reduction capability. As a result of the Clean Water Act of 1977, the achievement of BAT has become the principal national means of controlling toxic water pollution. The Agency evaluated the three major technology options set out in Section VII of the preamble for BPT-level technology.

We propose Option 2 (flow reduction of process wastewater and lime precipitation and sedimentation) as the

BAT technology option for the following two subcategories:

—Lead/Tin/Bismuth
—Iron and Steel/Copper/Aluminum Metal Powder Production and Powder Metallurgy

We propose Option 3 (Option 2 plus filtration) for the following nine subcategories:

—Beryllium
—Magnesium
—Nickel/Cobalt
—Precious Metals
—Refractory Metals
—Titanium
—Uranium
—Zinc
—Zirconium/Hafnium

Flow reductions at Options 2 and 3 are based on recycle of heat treatment contact cooling water through cooling towers, recycle of air pollution control scrubber liquor, countercurrent cascade rinsing of alkaline cleaning and surface treatment rinsewater, and use of holding tanks for all other process water subject to recycle. Approximately 30 percent of the direct dischargers have already achieved the reduced flow that forms the basis of Options 2 and 3 or have operations where EPA did not assume any flow reduction technology. In addition, in the nine subcategories for which we are proposing Option 3 as BAT, approximately 28 percent of the direct dischargers already have filtration in place or provide additional sedimentation which achieves toxic pollutant effluent concentrations equivalent to the levels achieved by filtration in the nonferrous metals forming industry.

The pollutants specifically limited under BAT in each subcategory are listed in Appendix B. These pollutants were selected because they were present in the largest quantities in the raw wastewater.

Implementation of BAT as proposed by EPA by all the direct dischargers in the 11 subcategories would remove an additional 1,900 pounds per year of total toxic metals beyond BPT at an additional capital cost of $0.7 million and additional annualized costs of $0.2 million. The Agency estimates that implementation of this proposed BAT would remove a total of 479,950 kg/year (1,058,100 lbs/year) of pollutants at a total annualized cost of $1.82 million from current levels. No potential plant closures are indicated as a result of meeting these proposed standards in our economic impact analysis. The Agency has therefore concluded that this level of BAT control is economically achievable.

EPA is not proposing BAT limitations based on Option 3 in the lead/tin/bismuth and iron and steel/copper/aluminum metal powder and powder metallurgy subcategories because requiring filters would remove very few additional pounds of pollutants. Filters would remove an estimated 322 pounds per year of additional pollutants but only 22.5 pounds per year of toxic metals. The mass of pollutants which Option 3 would remove and the costs of such removal for each of these two subcategories are presented in Section X of the Development Document.

In the other nine subcategories, however, the Agency believes that installation of filters in addition to the Option 2 technology would effectively remove significant amounts of additional pollutants and that based on available information the costs of these removals are achievable. The Agency recognizes, however, that many nonferrous metals forming plants not only perform operations that fall under more than one nonferrous metals forming subcategory, but also have discharges that are subject to regulations under other point source categories. Therefore, it was difficult to estimate the costs specifically associated with treating nonferrous metals forming wastewaters. After proposal, the Agency intends to conduct a plant-by-plant analysis of the degree of integration in nonferrous forming plants and the costs associated with each technology option. Based on this evaluation, and any data provided during the public comment period, EPA may choose to promulgate Option 2, rather than Option 3, as the BAT technology for one or more of these nine subcategories.

In particular, four subcategories, nickel/cobalt, refractory metals, titanium, and zirconium/hafnium, are highly integrated within themselves and with other industrial categories, some of which are not subject to effluent limitations based on the addition of filtration and typically combine process wastewaters from all operations for common treatment. If EPA determines that it has significantly underestimated the costs for these plants to either segregate their nonferrous metals forming flows subject to effluent limitations based on the addition of filtration or cotreat their combined wastewater flows and achieve the applicable effluent limitations, the Agency may choose to promulgate BAT based on Option 2 for those four subcategories and any other subcategories similarly situated. The Agency estimates that implementation of BAT based on Option 2 for these four subcategories and the lead/tin/bismuth and iron and steel/copper/aluminum metal powder production and powder metallurgy subcategories and Option 3 for the remaining five subcategories would remove a total of 478,000 kg/year (1,053,900 lbs/year) of pollutants at a total annualized cost of $1.73 million and would result in an incremental discharge of 273 pounds per year of toxic pollutants to surface waters over the proposed BAT. The Agency estimates that implementation of BAT based on Option 2 for all eleven subcategories would remove a total of 477,900 kg/year (1,053,600 lbs/year) of pollutants at a total annualized cost of $1.70 million.

EPA invites comments on the proposed BAT technology. EPA is especially interested in comments on the appropriateness of choosing Option 3, as well as the alternative technology it is considering, Option 2, for the nine subcategories. The Agency solicits information on the degree of integration of nonferrous metals forming plants and the cost of co-treating nonferrous metals forming wastewaters and other wastewaters relative to the cost of segregating these wastes and treating them separately. The effluent limitations which would be imposed if Option 2 were selected for any of these 9 subcategories are detailed in Section X of the Development Document. EPA invites comment on the achievability of these limitations.

The Agency is also considering promulgating Option 3 for both the lead/tin/ bismuth and the metal powder production and powder metalurgy of iron and steel/copper/aluminum subcategories, if the plant-by-plant analysis and additional data show that filtration does remove significant additional quantities of pollutants in these two subcategories and that the filtration technology is economically achievable. The limitations that would be imposed if Option 3 were selected for either of these two subcategories are detailed in Section X of the Development Document. EPA also invites comment on the achievability of these limitations.

XI. New Source Performance Standards (NSPS)

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 and use the best and the most efficient nonferrous metals forming processes and wastewater treatment technologies, without facing the added costs and

restrictions encountered in retrofitting an existing plant. Therefore, Congress directed EPA to consider the best demonstrated process changes, in-plant controls, and end-of-pipe treatment technologies which reduce pollution to the maximum extent feasible.

The Agency has considered three major technology options, discussed in Section VII of this preamble, which might be applied as the best available demonstrated technology level. Each of these options would substantially reduce the discharge of toxic pollutants. These options are described in detail in Section XI of the Development Document.

EPA is proposing NSPS for all 11 subcategories based on BAT level technology for those subcategories, since the Agency did not identify any additional technology which would remove significant quantities of additional pollutants. The technology basis for setting discharge limits for conventional pollutants for each subcategory would also be the BAT technology (even when BCT is less stringent than BAT for that subcategory). Because NSPS does not include any additional cost compared to BAT, we do not believe it will prevent the entry of new plants.

As discussed above, the Agency will consider promulgating Option 2 as the NSPS model technology for subcategories where the Agency is proposing NSPS based on Option 3 if we find that we have significantly under estimated the costs of NSPS based on the addition of filtration. Once again, integration of plants is a particular concern, so the Agency solicits comments on both Option 2 and Option 3 as the basis for NSPS, and data on the costs of both cotreatment, and segregation and separate treatment. Commenters should take into account the fact that it is generally easier and less expensive to install appropriate wastewater treatment technology in new plants than to retrofit existing plants.

XII. Pretreatment Standards for Existing Sources (PSES)

Section 307(b) of the Act requires EPA to promulgate pretreatment standards for existing sources (PSES) to prevent the discharge of pollutants which pass through, interfere with, or are otherwise incompatible with the operation of POTWs. These standards must be achieved within three years of promulgation. The legislative history of the 1977 Act indicates that pretreatment standards are to be technology-based, and generally analogous to BAT for direct dischargers. (Conference Report 95-830 at 87; *Reprinted in* Comm. on Environment and Public Works, 95th Cong. 2d Sess., *A. Legislative History of the Clean Water Act of 1977*, Vol. 3 at 272.)

Before proposing pretreatment standards, the Agency examines whether the pollutants discharged by the industry pass through the POTW or interfere with the POTW operation or its chosen sludge disposal practices. In determining whether pollutants pass through a POTW, the Agency compares the percentage of a pollutant removed by a well-operated POTW achieving secondary treatment with the precentage 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 POTWs meeting secondary treatment requirements is less than the percentage removed by direct dischargers complying with BAT effluent limitations guidelines for that pollutant. See generally, 46 FR 9415-9416 (January 28, 1981).

This definition of pass through satisfies two competing objectives set by Congress: (1) That standards for indirect discharges 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-indusrial 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.

A study of 40 well-operated POTWs with biological treatment and meeting secondary treatment criteria showed that regulated metals are typically removed at rates varying from 20 to 70 percent. POTWs with only primary treatment have even lower rates of removal. In contrast, BAT level treatment by nonferrous metals forming industrial facilities can achieve removals of approximately 99 percent. Thus it is evident that metals from this industry do pass through POTWs. Many of the pollutants present in nonferrous metals forming waste streams, at sufficiently high concentrations, can also inhibit biodegradation in POTW operations. In addition, a high concentration of toxic pollutants in the sludge can limit POTW use of sludge management alternatives, including the beneficial use of sludges on agricultural lands. Appendix B lists the specific pollutants regulated in each subcategory. Section XII of the Development Document compares the percent of pollutant remaining after treatment by a well-operated POTW with the percent removed by BAT leval treatment for each pollutant regulated in this category.

EPA is proposing PSES equal to BAT for all subcategories except the zinc and beryllium forming subcategories. Therefore, Option 2 is the technology basis for PSES in the lead/tin/bismuth and iron and steel/ copper/aluminum metal powder production and powder metallurgy subcategories, while the technology basis for PSES in the remaining seven subcategories is Option 3. Three of the indirect dischargers in the category have filtration technology or provide additional sedimentation which is achieving effluent concentrations equivalent to those achieved by filtration. Implementation of the proposed PSES would remove annually an estimated 64,000 kg (141,200 pounds) of toxic pollutants over the current discharge. Capital costs for achieving the proposed PSES are $6.6 million, with an annualized cost of $3.66 million.

Just as with BAT, the Agency will give consideration to adopting Option 2 as the PSES technology for those subcategories where it is proposing Option 3 if we determine that we have seriously underestimated the costs of this treatment level. The pollutant removals and costs of removal for each subcategory are provided in Section XII of the Development Document for both Options 2 and 3. We estimate that implementation of the proposed PSES would remove a total of 1,001,600 pounds per year of pollutants at an annualized cost of $3.66 million. Implementation of Option 2 technology by all indirect dischargers in all nine subcategories regulated under PSES would remove 997,700 pounds per year of pollutants at an annualized cost of $3.31 million. Implementation of Option 2 technology at the nickel/cobalt, refractory metals, titanium, and zircomium/hafmium subcategories, in addition to the lead/tin/bismuth and iron and steel/copper/aluminum metal powder and powder metallurgy subcategories, and Option 3 technology at the remaining three subcategories, would remove a total of 998,400 pounds per year of pollutants at an annualized cost of $3.44 million. The Agency invites comments on both options, and solicits data on the extent of integration among

indirect dischargers in this category, and the cost of cotreatment versus the cost of segregation and separate treatment of wastewaters from such integrated facilities.

The Agency is also considering promulgating Option 3 for both the lead/tin/bismuth and the metal powder production and powder metallurgy of iron and steel/copper/aluminum subcategories, if the plant-by-plant analysis and additional data show that filtration does remove significant additional quantities of pollutants in these two subcategories and that the filtration technology is economically achievable. The limitations that would be imposed if Option 3 were selected for either of these two subcategories are detailed in Section XII of the Development Document. EPA also invites comment on the achievability of these limitations.

EPA is proposing to exclude beryllium forming from PSES under the provisions of Paragraph 8(b) of the Settlement Agreement because there are no existing indirect dischargers in the beryllium forming subcategory. EPA is not proposing any categorical PSES for zinc forming because, on the basis of available information, it appears that the economic impacts of all available technology options are disproportionate for this subcategory. Our economic impact analysis indicates that one of the two indirect dischargers in that subcategory may close if required to comply with any categorical standard we could identify. The plant projected to close is by far the larger of the two indirect dischargers. The other plant is integrated, and therefore, its zinc forming wastewater would probably not escape treatment since it is likely to be cotreated with another waste stream at the plant which is regulated. Both zinc forming plants would still be subject to the general pretreatment standards. The Agency plans to reassess the costs for treatment at those two plants prior to promulgation and may decide to promulgate categorical standards for this subcategory if that reassessment indicates that the plant would not close if PSES equal to BAT, or some less stringent technology, were applied. The Development Document contains the PSES EPA would establish for the zinc forming subcategory based on application of the BAT technology, which is Option 3 (lime and settle, flow reduction, and filtration) and Option 2 (lime and settle plus flow reduction) and Option 1 (lime and settle.) EPA invites comments on its proposed exclusion of the zinc forming subcategory from PSES and comment on the achievability of PSES based on Option 1, 2, or 3.

XIII. Pretreatment Standards for New Sources (PSNS)

Section 307(c) of the Act requires EPA to promulgate pretreatment standards for new sources (PSNS) at the same time that it promulgates NSPS. New indirect dischargers will produce wastes having the same pass through problems as described for existing dischargers. In selecting the technology basis for PSNS, the Agency compares the toxic pollutant removals 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 incorporate the best available demonstrated technologies including process changes, in-plant controls, and end-of-pipe treatment technologies, and to use plant site selection to ensure adequate treatment system installation.

We are proposing mass-based PSNS for all subcategories to assure that the identified flow reduction technologies are considered in new plant designs. In addition, we are proposing PSNS for the zinc forming and beryllium forming subcategories for which BAT and NSPS, but not PSES, are proposed.

The technology basis for the proposed PSNS is identical to NSPS, that is BAT/PSES. In addition, we are proposing PSNS equal to BAT for the beryllium forming and zinc forming subcategories. It is necessary to propose PSNS for all regulated toxic metals for the reasons gven above under PSES. We know of no economically feasible, demonstrated technology that removes significantly more pollutants than BAT/PSES technology. Because PSNS does not include any additional costs compared to PSES, we do not believe it will prevent the entry of new plants.

For the same reasons as discussed for BAT, NSPS, and PSES, EPA is considering promulgating Option 2 as the technology basis for PSNS for the subcategories where it is proposing Option 3 as PSNS. The Agency invites comments on the two options and solicits information on the cost of cotreatment versus the cost of segregation and separate treatment of wastewaters from integrated facilities.

XIV. Best Conventional Pollutant Control Technology (BCT)

The 1977 amendments to the Clean Water Act added Section 301(b)(2)(E), establishing "best conventional pollutant control technology" (BCT) for discharge of conventional pollutants from existing industrial point sources. Conventional pollutants are those defined in Section 304(a)(4) (biological oxygen demanding pollutants (BOD_5), 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 the other factors specified in Section 304(b)(4)(B), the Act requires that limitations for conventional pollutants be assessed in light of a two-part cost-reasonableness test. On October 29, 1982, the Agency proposed a revised methodology for carrying out BCT analyses (47 FR 49176, October 29, 1982). The purpose of the proposal was to correct errors in and respond to a judicial remand of the BCT methodology originally established in 1977. A more specific explanation of the BCT methodology than this notice provides appears in the October 29, 1982 Federal Register notice.

Part 1 of the proposed BCT test requires that the cost and level of reduction of conventional pollutants by industrial dischargers be compared with the cost and level of reduction to remove the same type of pollutants by POTWs. The difference in cost is divided by the difference in pounds of conventional pollutants removed, resulting in an estimate of the "dollars per pound" of pollutant removed, that is used as a benchmark value. The proposed POTW test benchmark is $0.27 per pound in 1976 dollars. (The benchmark cost is $0.48 per pound in 1982 dollars.) If the conventional pollutant removal cost per pound for the candidate BCT is less than the POTW benchmark, Part 1 of the cost-reasonableness test is passed. Part 2 of the cost-reasonableness test is then performed.

Part 2 of the BCT test is an industry cost-effectiveness test which requires the evaluation of the incremental costs of removing conventional pollutants by the BCT technology in relation to the cost of removing conventional pollutants by BPT technology in the same industry. As a benchmark to assess the reasonableness of the ratio between the cost per pound of removal to achieve BPT and to achieve BCT, EPA has developed a ratio for POTW costs which compares the dollars per pound of conventional pollutant removed in going from primary to secondary treatment levels with that of going from secondary to a more advanced treatment level. The proposed benchmark is 1.43. If the ratio as defined for a given subcategory is lower than 1.43, the subcategory passes

the BCT ratio test. Both cost-tests must be passed to establish BCT limitations more stringent than BPT limits. If all candidate BCT technologies fail the cost-reasonableness test, the BCT requirements for conventional pollutants are equal to BPT.

The Agency considers two conventional pollutants in the cost test: TSS and an oxygen-demanding pollutant. Although both oil and grease and BOD_5 are considered to be oxygen-demanding pollutants by EPA (see 44 FR 50733, August 29, 1979), only oil and grease, the pollutant accounting for the greatest removal, was included in the cost analysis. See 47 FR 49181, October 29, 1982. Oil and grease is used rather than BOD_5 in the cost analysis performed for nonferrous metals forming waste streams (in addition to TSS) due to the common use of oils in this industry.

It should be noted that the cost used in the BCT test for the nonferrous metals forming category are somewhat different from those used in the economic impact analysis and in estimating the total cost of compliance with this regulation. For the BCT test, the costs used for Option 1 are the engineering estimates of costs to implement the technology used as the basis for BPT, i.e., lime and settle. However, for the economic impact analysis and the estimate of total compliance cost, if a plant could meet the BPT limitation at a lower cost by installing flow reduction in conjunction with its lime and settle system, i.e., Option 2, EPA assumed the plant would do so. In this case, the cost of BPT would then be the lower cost estimated for Option 2, even through flow reduction would be unnecessary to meet the pollutant removals achievable by the BPT technology.

The Agency's decision to use the actual engineering cost estimates for Option 1 when using the proposed BCT cost test, rather than assume that a company would install the cost-minimizing flow reduction is consistant with the Agency's previous BCT proposals. The Agency invites comment on the choice of costs for the BCT test.

The Agency has applied the proposed BCT cost test to assess candidate BCT technologies by comparing the annualized cost for the candidate technologies to the annualized cost for the selected BCT technology. The incremental costs of each candidate BCT technology was then divided by the incremental amounts of conventional pollutants (TSS and oil and grease) removed by the additional technology. The annualized costs for each option considered as a candidate technology for each subcategory are given below. Option 1, lime and settle without flow reduction, was selected as the BPT technology in all subcategories. Option 2 is lime and settle with flow reduction, and Option 3 is lime and settle plus filtration plus flow reduction.

Subcategory	Option1	Option 2	Option 3
Lead/Tin/Bismuth	39,931	14,432	39,931
Nickel/Cobalt	119,721	71,844	94,932
Titanium	859,341	729,031	737,432
Zirconium/Hafnium	98,523	79,093	92,831
Refractory Metals	70,374	102,473	114,977
Precious Metals	113,936	159,029	184,855
Powder Metallurgy	77,523	77,523	101,641
Zinc	29,703	39,841	[1] 39,841
Magnesium	70,859	44,564	44,570
Beryllium	0	310	[1] 310
Uranium	149,335	126,619	[1] 126,619

[1] There is only one direct discharger in this subcategory. This plant already has a filter or provides additional treatment which achieves equivalent results in the nonferrous metals forming industry, and no additional costs would be incurred for the additional treatment.

It is apparent from this table that in many cases the higher level options are less expensive than Option 1. In those cases, the incremental cost is negative (i.e., there is a savings in annualized costs) and the higher level option automatically passes both BCT cost tests. Those higher level options with the same annualized costs as the annualized BPT cost also pass both BCT cost tests, since there are no incremental costs in those cases. Therefore, we need only assess the incremental costs and incremental pollutant removals for those cases where the higher level options have greater annualized costs than the BPT option. An example of the calculation is as follows:

BCT cost for Lead/Tin/Bismuth direct dischargers:

	Per year
Annualized Cost of Option I	$39,931
Annualized Cost of Option III	35,931
Incremental Cost	5,999

Conventional Pollutants Discharged at Option 1=1,114 pounds per year.

Conventional Pollutants Discharged at Option 3=134 pounds per year.

Incremental Removal=980 pounds per year.

Dollars Per Pound=$5,680÷980=$5.80 per pound.

The calculated cost in dollars per pound of conventional pollutants removed exceeds the benchmark cost for the first BCT cost test, $0.48, and the candidate technology fails the proposed BCT cost test. Therefore, there is no need to consider the second BCT cost test, and the candidate technology would not be selected for BCT. We selected Option 2 as BCT technology in this subcategory because the cost of Option 2 is less than the cost of Option 1. (Option 2 was also selected as the BAT technology in this subcategory.)

In all cases where the annualized cost per pound of the candidate BCT technology exceeds the annualized cost per pound of the BPT technology in a subcategory of the nonferrous metals forming category, the candidate BCT technology failed the BCT cost test.

An alternative calculation of costs for each option which could have been appled is to assign the cost of the lowest cost option for each model plant to BPT as long as it is not negative. When the cost of Option 2 was negative, the cost was set equal to zero for that model. Then this method is used, the following annualized costs for each option for each subcategory are estimated:

Subcategory	Option 1	Option 2	Option 3
Lead/Tin/Bismuth	12,822	14,432	35,931
Nickel/Cobalt	74,504	63,837	94,932
Titanium	719,325	755,646	737,432
Zirconium/Hafnium	61,020	84,563	92,831
Refractory Metals	67,811	102,935	114,977
Precious Metals	113,936	159,200	184,855
Powder Metallurgy	77,523	77,523	101,641
Zinc	26,703	39,841	39,841
Magnesium	44,561	44,564	44,570
Beryllium	0	310	310
Uranium	126,619	126,619	126,619

Significantly different technology options would be selected in several subcategories as BCT technology if EPA had used the above costs because in no case, using the above cost estimates, is the annualized cost of a higher level option less than the annualized cost of BPT. Those cases where the annualized costs are the same would still pass the proposed BCT cost test since the incremental cost is zero. However, where the annualized cost of the higher level option exceeds that of BPT, the higher level option fails the proposed BCT cost test. An example calculation is as follows:

BCT cost test for Lead/Tin/Bismuth direct dischargers:

	Per year
Annualized Cost of BPT	$12,822
Annualized Cost of Option 2	14,432
Incremental Cost	1,660

Conventional Pollutants Discharged at Option 1=1,114 pounds per year.

Conventional Pollutants Discharged at Option 2=234 pounds per year.

Incremental Removals=880 pounds per year.

Dollars per pound=$1,660÷880 pounds=$1.89 per pound.

The candidate BCT technology failed the BCT cost test. Therefore, we would have selected Option 1 as BCT for this subcategory if we had used the

alternative costs. The Agency invites comment on using the two alternative sets of costs in evaluating BCT options.

Based on the first set of costs described above, we propose BCT based on Option 1 (BPT) for the following four subcategories because both higher level options failed the proposed BCT cost test:

—Zinc
—Beryllium
—Precious Metals
—Refractory Metals

The costs ranged from $2.21 to $167.48 per pound of conventional pollutants removed when BCT is based on Option 2 technology. The costs ranged from $2.61 to $173.25 per pound of conventional pollutants removed when BCT is based on the BAT technology.

We propose BCT based on Option 2, lime and settle plus flow reduction, for the following subcategory:

—Lead/Tin/Bismuth
—Zirconium/Hafnium
—Iron and Steel/Copper/Aluminum Metal Powder Production and Powder Metallurgy

These subcategories failed the proposed BCT cost test with a cost of $4.09 to $137.95 per pound of conventional pollutants removed. However, the annualized cost of Option 2 is less than the annualized cost of the BPT technology (Option 1) for these subcategories. Therefore, Option 2 is appropriate for BCT.

We propose BCT based on Option 3 for the following four subcategories because the Option 3 technology passed the proposed BCT cost test:

—Nickel/Cobalt
—Titanium
—Magnesium
—Uranium

In all four subcategories, the reduced operating costs which result from flow reduction more than offset the increased costs for the additional technology so that the annualized cost for the BAT (BCT) technology is less than the annualized cost for the BPT technology.

XV. Regulated Pollutants

The basis upon which the controlled pollutants were selected, as well as the general nature and environmental effects of these pollutants, is set out in Sections V, VI, IX and X of the Development Document. Some of these pollutants are designated as toxic under Section 307(a) of the Act. Three pollutants have been deleted from the list of 129. These are dichlorodifluoromethane, and trichlorofluromethane (46 FR 2266, January 8, 1981) and bis(chloromethyl) ether (46 FR 10723, February 4, 1981).

The pollutants selected for regulation are listed by subcategory in Appendix B.

In general, in each subcategory we have selected for regulation the two or three toxic metals present at the highest concentrations in the raw waste, because in removing these two or three toxic metals, the lime and settle treatment system also provides adequate removal of the other toxic metals present at lower concentrations. The lime and settle treatment system removes all metals, particularly the metal present at the highest concentration.

In each subcategory, the metal present at highest concentration is the metal being subjected to the forming operations. In several subcategories the metal present in the greatest amount is a toxic metal (nickel in the nickel forming subcategory, for example). In other subcategories the metal present in greatest amount is a nonconcentional pollutant (titanium in the titanium subcategory, for example). In these cases, we have also selected the nonconventional metal for regulation to ensure that all the toxic metals are adequately removed from the wastewater by the treatment system. Regulation of only two or three toxic metals in these subcategories, would not ensure adequate control of all toxic metals because the toxic metals are present at relatively low concentrations in these subcategories. The Agency believes that control of the nonconventional metals in the magnesium, refractory metals, titanium, uranium, and zirconium/hafnium subcategories is necessary to ensure adequate removal of all toxic metals, both regulated and unregulated. We invite comment and data on this conclusion.

We have selected radium for regulation in the uranium forming subcategory, in addition to the toxic metals and uranium, because radium is a contaminant of uranium and would be expected to be present in uranium forming process wastewater.

We have selected the nonconventional pollutants ammonia and fluoride for regulation in those subcategories where these pollutants are found at treatable levels. Ammonia is not removed by the lime and settle treatment system, and we have included the cost of the additional treatment (steam stripping) necessary for control of ammonia. Fluoride is removed by a lime and settle treatment system when lime is used for precipitation of the metals, but it is not removed when caustic or soda ash is used instead of lime for precipitation of metals.

XVI. Pollutants and Subcategories Not Regulated

The Settlement Agreement contains provisions authorizing the exclusion from regulation, in certain instances, of toxic pollutants and industry subcategories.

A. Exclusion of Pollutants

Under Paragraph 8(a)(iii) of the Settlement Agreement, EPA is excluding certain toxic pollutants from regulation for one or all of the following reasons:

(a) The pollutant is not detectable in the effluent with the use of analytical methods approved pursuant to Section 304(h) of the Act or other state-of-the-art methods.

(b) The pollutant cannot be quantified in the effluent with the use of analytical methods approved pursuant to Section 304(h) of the Act or other state-of-the-art methods.

(c) The pollutant is present in amounts too small to be effectively reduced by technologies known to the Administrator.

(d) The pollutant is present in the effluent from only a small number of sources.

Appendix C lists those toxic pollutants which were not regulated in any subcategory. Appendix D lists those toxic pollutants which were not regulated in particular subcategories.

As noted in Section V of this preamble, we do not have date available at this time on the toxic organic pollutants in the beryllium forming, zinc forming, and uranium forming subcategories. Although there is no reason to expect that the presence of toxic organics is different in these three subcategories than the other eight subcategories, where only insignificant amounts were found, the Agency will modify this proposed exclusion if the data, when it becomes available, shows significant, treatable levels of toxic organics in any of those three subcategories.

B. Exclusion of Subcategories

Under Paragraph 8(a)(iv) of the Settlement Agreement, EPA is excluding certain metals from regulation because there are no dischargers in the subcategory. Appendix E lists the subcategories which were not regulated for this reason.

XVII. Economic Considerations

A. Costs and Economic Impacts

EPA's economic impact assessment is set forth in *Economic Analysis of Proposed Effluent Limitations and Standards for the Nonferrous Metals*

Forming Industry (EPA 440/2–84–005). This report presents the required investment and annual costs for existing sources in the industry as a whole and for typical new sources covered by the proposed regulation. The report also estimates the impacts of the costs of the regulation in terms of price changes, production changes, profitability changes, plant closures, employment changes, local community impacts, shifts in imports and exports, and industry structure changes.

EPA has identified 294 plants that perform nonferrous metals forming operations. Of these 294 plants, 148 do not discharge process wastewater, 32 are direct dischargers, 107 are indirect dischargers, and seven are both direct and indirect dischargers. Total investment cost to achieve BAT and PSES is estimated to be $10.2 million and annual cost is estimated to be $5.5 million beyond current costs of waste treatment. These costs are expressed in 1982 dollars. The annual costs include depreciation and interest.

The costs of implementing the regulation were extrapolated on a plant-by-plant basis for a sample of 86 discharging plants (compliance costs were not estimated for 37 discharging plants due to lack of data) based on plant-specific compliance cost estimates for 23 plants that represent 22 homogeneous groups of plants in terms of wastewater characteristics, wastewater flow, and treatment-in-place. Compliance cost estimates for each of these 23 plants were extrapolated to each of the remaining plants in the respective costing groups based on the plant's wastewater flow rate or, when flow data were not available, on annual plant production volume.

The wastewater treatment systems for each of the 23 plants used as models were sized to include all process wastewaters from all nonferrous metals forming subcategories at the plants. The combined nonferrous metals forming wastewaters at the costed plants were assumed to be cotreated in a common wastewater treatment system, which is the normal practice followed by those plants with treatment-in-place. Many of the other plants represented by a model plant are included in several subcategories and often these other plants are not included in one or more of the same subcategories included at the model plant (or are included in different subcategories), so allocation of costs by subcategories was difficult. Many plants also are included in other point source categories in addition to nonferrous metals forming. The normal practice at such plants where treatment is currently installed is to cotreat all wastewaters from all operations at those plants. Cotreatment of nonferrous metals forming wastewater with wastewater from other categories was not considered formally in developing the costs of compliance with this proposed nonferrous metals forming rule. The Agency intends to develop costs on a plant-by-plant basis after proposal, which will, to the extent possible, take into account integration of nonferrous metals forming subcategories and other categories at specific plants, and the relative costs of cotreatment versus segregation and separate treatment, when different waste streams are not subject to the same requirements. Since cotreatment allows for economics of scale, the Agency expects that the plant-by-plant analysis will show a lower cost of compliance. We invite comments on the cost of cotreatment of nonferrous metals forming wastewater with other wastewater and the cost of segregating nonferrous metals forming wastewaters for separate treatment.

The industry is subcategorized by the type of metal produced. The economic impact assessment began with a microeconomic model which projects the price and output behavior of each industry segment. It is used, in conjunction with plant compliance cost estimates, to determine after-compliance price and production levels for each industry segment and for each regulatory option.

A financial profile was developed for each of the plants based on average financial ratios for the industry subcategories in which the plant competes. The primary variables of interest in estimating the potential economic impacts of the proposed regulation on individual plants were profitability, as measured by the after-compliance net present value (NPV); and the ability of individual plants to raise capital, as measured by the after-compliance fixed charge coverage ratio. The plant NPV represents the excess of the discounted value (i.e., present value) of the projected cash flows from operating the plant over the present value of the cash flows generated by liquidating the plant and investing the proceeds in an alternative investment. The fixed charge coverage ratio is defined as earnings before interest and taxes over interest payments. Other factors considered in judging the likelihood of closure include the degree of integration, and market characteristics such as the degree of competition and the existence of specialty markets.

Price increases resulting from the regulation are expected to range from 0.1 percent for precious metals forming to 2.4 percent for uranium forming. Three potential plant closures (all indirect dischargers) are projected; these three plants form nickel, titanium, and refractory metals products. The production loss for these plants would range from 400,000 pounds per year to 2.5 million pounds per year. The closure of these three nonferrous metals forming facilities would affect about 280 jobs. Community, industry structure, and balance of trade effects would be insignificant.

Finally, 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. This analysis is included in the record of this rulemaking, and is entitled *Cost-Effectiveness Analysis of Proposed Effluent Limitations and Standards for the Nonferrous Metals Forming Industry*.

BPT: Thirty-nine plants are direct dischargers. One plant is achieving the proposed BPT effluent limitations. The proposed BPT regulation is projected to cost $2.9 million in investment costs and $1.6 million in annual costs for these plants. No plant closures or job losses are anticipated as a result of the proposed BPT regulation. Price increases over current prices would range from less than 0.1 percent to 2.4 percent. The cost estimates take into account treatment-in-place.

Since the BPT regulatory flow is on the whole larger than the BAT flow, and the in-process controls tend to be relatively inexpensive, the cost of treatment with flow reduction is less than the cost of treating the BPT regulatory flows for a number of plants. For the purpose of evaluating the economic impacts, it was assumed that plants with no treatment-in-place would install the least expensive treatment to meet the requirements of BPT. Hence, in those cases where the cost of treating the reduced flows was maller, it was assumed that the lower costs would be

incurred to meet the BPT Limits and no incremental cost would be incurred in meeting the BAT limits.

BAT: The proposed BAT regulation will also affect the 39 direct dischargers in the nonferrous metals forming industry. Total investment costs are estimated to be $3.6 million, with annual costs of $1.8 million. The incremental costs over BPT are estimated to be $0.7 million in investment costs and $0.2 million in annual costs. There are no plant closures or job losses projected as a result of the BAT regulation. Price increases over current prices would range from 0.1 percent to 2.4 percent, about the same as the BPT increases. Thus, EPA has determined that the proposed BAT regulation is economically achievable.

BCT: The proposed BCT standards are equal to or less stringent than BAT for all subcategories and hence have no economic impact beyond the proposed BPT and BAT standards.

PSES: One hundred and fourteen plants are identified as indirect dischargers. The pollution control technology for the pretreatment standards is identical to the BAT treatment technology, with one exception. The impact analysis indicates that four indirect discharging plants are potential closures under each option considered. One plant produces zinc; the other three plants produce combinations of nickel/cobalt, titanium, and refractory metals, The Agency is proposing exclusion of the zinc forming subcategory from national PSES because one of the two indirect dischargers in that subcategory, which produces zinc and no other nonferrous metals covered under this regulation, is expected to close at each of the technology options considered. EPA has determined that imposing any categorical standards on the zinc forming subcategory would result in a disproportionate impact on this segment of the industry. However, as discussed earlier in this preamble, the Agency will be conducting a plant-by-plant analysis of costs after proposals. Based on this analysis, EPA may find that it is appropriate to promulgate PSES for the zinc forming subcategory.

In the other subcategories which include potential closures, similar exclusions are not appropriate because there are a large number of plants and a size cutoff would leave many plants unregulated, even when the control costs are economically achievable for the subcategory as a whole.

With the PSES exclusion for the zinc forming subcategory, investment costs for the remaining 113 indirect dischargers are estimated to be $6.6 million and annual costs to be $3.7 million. In terms of unemployment, the three potential closures associated with PSES could affect approximately 280 employees. Total loss in industry production would be about 0.7 percent. Price increases would range from 0.1 to 0.3 percent. Thus, the Agency has determined that PSES is economically achievable.

As noted above, the impact analysis is based on engineering cost estimates for 23 typical plants, and extrapolated costs for the remaining plants. The plants projected to close are among the latter group. If the plant-by-plant engineering cost estimates planned for the post-proposal period indicate a change in impacts, the Agency will modify its analysis.

NSPS–PSNS: The proposed effluent standards and associated technologies for new sources are identical to those for existing sources except that EPA has also included PSNS for the beryllium forming and zinc forming subcategories. Consequently, the economic impacts for new sources will be similar to those of existing sources and the proposed regulations are not expected to cause barriers to entry.

B. Executive Order 12291

Executive Order 12291 requires EPA and other agencies to perform regulatory impact 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, as discussed above, is significantly less than $100 million and it meets none of the other criteria specified in Section 1 (b) of the Executive Order. The economic impact analysis prepared for this rulemaking meets the requirements for non-major rules.

C. Regulatory Flexibility Analysis

Pub. L. 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 populations, large or small. Therefore, a formal regulatory flexibility analysis is not required.

D. SBA Loans

The Agency is continuing to encourage small plants to use Small Business Administration (SBA) financing as needed for pollution control equipment. The three basic programs are: (1) The Pollution Control Bond Program, (2) the Section 503 Program, and (3) the Regular Business Loan Program. Eligibility for SBA programs varies by industry. Generally, the programs require that a company be independently owned and not dominant in its field, the workforce range from 250 to 1,500 employees industry, and annual sales revenue range from $275,000 to $22 million (varies by industry).

For further information and specifics on the Pollution Control Bond Program contact: U.S. Small Business Administration, Office of Pollution Control Financing, 4040 North Fairfax Drive, Rosslyn, Virginia 22203, 703/235–2902.

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

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

For additional information on the Regular Business Loan and Section 503 Programs, persons should contact their district or local SBA office. The coordinator at EPA headquarters is Ms. Frances Desselle who may be reached at 202/382–5373.

XVIII. Nonwater Quality Aspects of Pollution Control

The elimination or reduction of one form of pollution may aggravate 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 vairous EPA offices responsible for these programs have reviewed this proposed regulation and concur with its provisions and the assessment of anticipated effects, described below.

The following are the nonwater quality environmental impacts

(including energy requirements) associated with the proposed regulations:

A. Air Pollution

Imposition of BPT, BAT, BCT, NSPS, PSES, and PSNS will not create any substantial air pollution problems.

B. Solid Waste

EPA estimates that nonferrous metals forming facilities generated 14,000 kkg (15,400 tons) of solid wastes (wet basis) in 1981 as a result of wastewater treatment-in-place. These wastes were composed of treatment system sludges containing toxic metals, including antimony, cadmium, chromium, copper, lead, nickel, and zinc.

EPA estimates that the proposed BPT will generate an additional 3,900 kkg (4,300 tons) per year of solid wastes. The proposed BAT will increase these wastes by approximately 5.9 kkg (6.5 tons) per year beyond BPT levels. PSES will increase these wastes by approximately 9,900 kkg (10,900 tons) per year beyond current levels. New nonferrous metals forming plants subject to PSNS/NSPS would also generate treatment system sludges. These sludges will necessarily contain additional quantities (and concentrations) of toxic metal pollutants.

Wastes generated by nonferrous metal formers are subject to regulation under Subtitle C of the Resource Conservation and Recovery Act (RCRA) if they are hazardous. However, the Agency examined solid wastes similar to those that would be generated at nonferrous metals forming plants by the suggested treatment technologies (that is, the sludges from lime and settle treatment) and believes they are not hazardous wastes under the Agency's regulations implementing Subtitle C of RCRA. None of these wastes are specifically listed as hazardous, nor are they likely to exhibit one of the four characteristics of hazardous waste (See 40 CFR Part 261), based on the recommended technology of chemical precipitation and sedimentation, preceded where necessary by hexavalent chromium reduction. 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 Extraction Procedure (EP) toxicity test. See 40 CFR 261.24. Thus, the Agency believes that treatment sludges from nonferrous metals forming wastewaters will similarly not be EP toxic if the recommended technology is applied. The Agency requests comment on this conclusion. We specifically request cost information if there is reason to believe these sludges would be classified as hazarous.

The Agency is not proposing an allowance for discharge of spent solvents from the solvent degreasing operations at nonferrous metals forming plants. Disposal of the spent solvent may be subject to regulation under RCRA. However, no plant in the nonferrous metals forming industry is known to currently discharge the spent solvents. Therefore, the cost of disposal of the spent solvents has not been included in estimating the costs of this proposed regulation because all plants which use solvent degreasing are already incurring those costs.

The Agency is proposing a no discharge requirement for tube-reducing spent lubricant because, based on analytical data for that wastestream at the one plant sampled, that wastestream contains treatable levels of N-nitrosodiphenylamine. That wastestream would have to be disposed of as a solid waste. We have not estimated the cost of that disposal but expect it to be quite small because the wastestream is quite small. We invite comments and data on the cost of disposal of that wastestream as a solid waste.

Although it is the Agency's view that solid wastes generated by the treatment technologies which serve as the basis for these guidelines are not expected to be hazardous, generators of these wastes must test the waste to determine if the wastes meet any of the characteristics of hazardous waste (see 40 CFR 262.10). The Agency also may list these wastes as hazardous under 40 CFR 261.11.

If these are hazardous, as defined by RCRA, 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 require generators of hazardous wastes to meet containerization, labeling, recordkeeping, and reporting requirements; if plants dispose of hazardous wastes off-site, they have to prepare a manifest which tracks 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. 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. Finally, RCRA regulations establish standards for hazardous waste treatment, storage, and disposal facilities allowed to receive such wastes. See 40 CFR Part 264.

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 Section 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 Development Document.

C. Energy Requirements

EPA estimates that the achievement of proposed BPT effluent limitations will result in a net increase in electrical energy consumption of approximately 3.9 million kilowatt-hours per year. The BAT technology should not substantially increase the energy requirements over the requirements of BPT because the additional pumping requirements for filtration should be offset by the reduced pumping requirements, the agitation requirement for mixing wastewater, and other volume-related energy requirements, as a result of reducing process wastewater discharge to treatment. Therefore, the BAT limitations are assumed to require an equivalent energy consumption to that of the BPT limitations. To achieve the BPT and BAT effluent limitations, a typical direct discharger will increase total energy consumption by 110,000 kilowatt-hours per year.

The Agency estimates that PSES will result in a net increase in electrical energy consumption of approximately 6.0 million kilowatt-hours per year. To achieve PSES, a typical existing indirect discharger will increase energy consumption by 50,000 kilowatt-hours per year.

The Agency estimates that the NSPS and PSNS technology will, in general, require as much energy as BAT and PSES, respectively.

XIX. Best Management Practices (BMP)

Section 304(e) of the Clean Water Act authorizes the Administrator to prescribe "best management practices" (BMPs) described under Legal Authority and Background, above. EPA is not proposing specific BMPs for the nonferrous metals forming category at this time.

XX. 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.2d 1253 (9th Cir. 1977) with *Weyerhaeuser* v. *Costle, Supra* and *Corn Refiners Association, et al.* v. *Costle*, No. 78–1069 (8th Cir. April 2, 1979). See also *American Petroleum Institute* v. *EPA*, 540 F.2d 1023 (10th Cir. 1976); *CPC International, Inc.* v. *Train*, 540 F.2d 1320 (8th Cir. 1976); and *FMC Corp.* v. *Train*, 539 F.2d 973 (4th Cir. 1976).

An upset is an unintentional episode during which effluent limits are exceeded, a bypass, however, is an act of intentional noncompliance during which waste treatment facilities are circumvented in emergency situations. EPA has, in the past, included bypass provisions in NPDES permits.

EPA has determined that both upset and bypass provisions should be included in NPDES permits and has promulgated permit regulations that include upset and bypass permit provisions. See 40 CFR 122.41. 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. Consequently, although permittees in the nonferrous metals forming industry will be entitled to upset and bypass provisions in NPDES permits, this proposed regulation does not address these issues. Upset provisions are also contained in the General Pretreatment regulation, 40 CFR Parts 125 and 403.

XXI. Variances and Modifications

Upon the promulgation of the final regulation, the numerical effluent limitations for the appropriate subcategory must be applied to all federal and state NPDES permits thereafter issued to nonferrous metals forming direct dischargers. In addition, upon promulgation, the pretreatment standards are directly applicable to indirect dischargers.

For the BPT effluent limitations, the only exception to the binding limitations is EPA's "fundamentally different factors" variance. See *E. I. duPont de Nemours and Co.* v. *Train*, 430 U.S. 112 (1977); *Weyerhaeuser Co.* v. *Costle, supra*. This variance recognizes factors concerning a particular discharger that are fundamentally different from the factors considered in this rulemaking. However, the economic ability of the individual operator to meet the compliance cost for BPT standards is not a consideration for granting a variance. See *National Crushed Stone Association* v. *EPA*, 449 U.S. 64 (1980). Although this variance clause was originally set forth in EPA's 1973–1976 industry regulations, it is now included in the general NPDES regulations and will not be included in the nonferrous metals forming or other specific industry regulations. See the general NPDES regulations at 40 CFR Part 125, Subpart D.

The BAT limitations in this regulation also are subject to EPA's "fundamentally different factors" variance. In addition, BAT limitations for nonconventional pollutants are subject to modifications under Sections 301(c) and 301(g) of the Act. These statutory modifications do not apply to toxic or conventional pollutants. According to Section 301(j)(1)(B), applications for these modifications must be filed within 270 days after promulgation of final effluent limitations guidelines.

The economic modification section of the Act (Section 301(c)) gives the Administrator authority to modify BAT requirements for nonconventional pollutants for dischargers who file a permit application after July 1, 1978, upon a showing that such modified requirements will (1) represent the maximum use of technology within the economic capability of the owner or operator and (2) result in reasonable further progress toward the elimination of the discharge of pollutants. The environmental modification section (301(g)) allows the Administrator, with the concurrence of the State, to modify BAT limitations for nonconventional pollutants from any point source upon a showing by the owner or operator of such point source satisfactory to the Administrator that:

(a) Such modified requirements will result at a minimum in compliance with BPT limitations or any more stringent limitations necessary to meet water quality standards;

(b) Such modified requirements will not result in any additional requirements on any other point or nonpoint source; and

(c) Such modification will not interfere with the attainment or maintenance of that water quality which shall assure protection of public water supplies, and the protection and propagation of a balanced population of shellfish, fish, and wildlife, and allow recreational activities, in and on the water and such modification will not result in the discharge of pollutants in quantities which may reasonably be anticipated to pose an unacceptable risk to human health or the environment because of bioaccumulation, persistency in the environment, acute toxicity, chronic toxicity (including carcinogenicity, mutagenicity, or teratogenicity), or synergistic propensities.

Section 301(j)(1)(B) of the Act requires that applications for modification under Section 310 (c) or (g) must be filed within 270 days after the promulgation of an applicable effluent guideline. Initial applications must be filed with the Regional Administrator and, in those States that participate in the NPDES Program, a copy must be sent to the Director of the State Program. Initial applications to comply with Section 301(j) must include the name of the permittee, the permit and outfall number, the applicable effluent guideline, and whether the permittee is applying for a 301(c) or 301(g) modification of both.

Indirect discharges subject to PSES and PSNS are eligible for credits for toxic pollutants removed by a POTW. See 40 CFR 403.7. New sources subject to NSPS are not eligible for any other statutory or regulatory modifications. See *E.I. duPont de Nemours & Co.* v. *Train, supra*.

Indirect dischargers subject to PSES have, in the past, been eligible for the "fundamentally different factors" variance. See 40 CFR 403.13. However, on September 20, 1983, the United States Court of Appeals for the Third Circuit held that "FDF variances for toxic pollutants are forbidden by the Act," and remanded 403.13 to EPA. *NAMF et al.* v. *EPA*, Nos. 79–2256 et al. (3rd Cir.). EPA is considering the effect of that decision.

In a few cases, information which would affect these PSES may not be available to EPA or affected parties in the course of this rulemaking. As a result, it may be appropriate to issue specific categorical standards for such facilities, treating them as a separate subcategory with more, or less, stringent standards as appropriate. This will only be done if a different standard is appropriate because of unique aspects of the factors listed in Section 304(b)(2)(B) of the Act: The age of equipment and facilities involved, the process employed, the engineering

aspects of applying control techniques, nonwater quality environmental impacts (including energy requirements), or the cost of required effluent reductions (but not of ability to pay that cost).

After this regulation is promulgated, indirect dischargers and other affected parties may petition the Administrator to examine those factors and determine whether these PSES are properly applicable in specific cases or should be revised. Such petitions must contain specific and detailed support data, documentation, and evidence indicating why the relevant factors justify a more, or less, stringent standard, and must also indicate why those factors could not have been brought to the attention of the Agency in the course of this rulemaking. Accordingly, persons should submit all available information suggesting that alternative limitations should be established for specific facilities during the comment period for this regulation.

XXII Implementation of Limitations and Standards

A. Relationship to NPDES Permits

The BPT, BAT, and BCT limitations and NSPS in this regulation will be applied to individual nonferrous metals forming plants through NPDES permits issued by EPA or approved State agencies under Section 402 of the Act. As discussed in the preceding section of this preamble, these limitations must be applied in all Federal and State NPDES permits except to the extent that variances and modifications are expressly authorized. Other aspects of the interaction between these limitations and NPDES permits are dicussed below.

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.

One issue that warrants consideration is the effect of this regulation on the powers of NPDES permit-issuing authorities. 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. The promulgation of this regulation will not restrict the power of any permitting authority to act in any manner consistent with law or these or any other EPA regulations, guidelines, or policy. For example, even if this regulation does not control a particular pollutant, the permit issuer may still limit the pollutants on a case-by-case basis when such actions conform with the purposes of the Act. In addition, to the extent that 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 limitations on covered pollutants), the permit-issuing authority must apply those limitations.

A second topic that warrants discussion is the operation of EPA's NDPES enforcement program, many aspects of which were considered in developing this regulation. The Agency emphasizes that although the Clean Water Act is a strict liability statute, the initiation of enforcement proceedings by EPA is discretionary. *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 efforts.

B. Indirect Dischargers

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

A "request for category determination" is a written request, submitted by an indirect discharger or its POTW, for a determination of which categorical pretreatment standard applies to the indirect discharger. This assists the indirect discharger in knowing which PSES or PSNS Limits it will be required to meet. See 40 CFR 403.6(a).

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

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

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

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

INDIRECT DISCHARGERS SCHEDULE FOR SUBMITTAL AND COMPLIANCE

Item	Applicable sources	Date or time period	Measured from—	Submitted to—
Request for category determination	Existing	60 days or 60 days	From effective date of standard or From Federal Register development document availability	Director [1]

INDIRECT DISCHARGERS SCHEDULE FOR SUBMITTAL AND COMPLIANCE—Continued

Item.	Applicable sources	Date or time period	Measured from—	Submitted to—
Request for fundamentally different factors variance.	New	Prior to commencement of discharge to POTW.		Director.[1]
	Existing nonconventional pollutants only.	180 days	From effective date of standard	
Baseline monitoring	All	180 days	From effective date of standard or final decision on category determination.	Control authority.[2]
Report on compliance	Existing	90 days	From date for final compliance	Control authority.[2]
	New	90 days	From commencement of discharge to POTW	
Periodic compliance reports	All	June and December		Control authority.[2]

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

XXIII. Solicitation of Comments

EPA invites public participation in this rulemaking. We ask that any perceived deficiencies in the record be addressed specifically. We also ask that any suggested revisions or corrections be supported by data.

In addition to issues already addressed in the preamble, EPA is particularly interested in receiving additional comments and information, supported by appropriate data, on the following issues:

1. In our discussion of choices for BPT, BAT, BCT, PSES, NSPS, and PSNS for each subcategory, we described the range of options we considered. We formally solicit comment on whether we should adopt less or more stringent options in each subcategory, and if so, why.

2. The Agency is continuing to seek additional data to support these proposed imitations and standards. The treatment effectiveness data for lime and settle and lime, settle and filter technology are based on the results of Agency sampling of the raw wastewaters and treated effluents from a broad range of plants generating similar wastewaters and (for filtration) on long-term self-monitoring data from two porcelain enameling plants and one nonferrous metals manufacturing plant. The Agency invites comments on the treatment effectiveness results, and the statistical analysis and underlying assumptions discussed in Section VII of the Development document as they pertain to nonferrous metals forming plants. The Agency specifically requests long-term sampling data (especially paired raw wastewater—treated effluent data) from nonferrous metals forming plants having well-operated treatment systems using the treatment technologies relied upon for this regulation, and also other equally effective treatment technologies.

3. In its cost estimates the Agency has considered cost savings associated with water flow reduction, such as reduced costs for new equipment and reduced operating costs for existing equipment, but has not considered other cost savings associated with reduced flow, such as reduced charges for water use and sewerage savings. The Agency invites comments and requests that cost data be submitted to the Agency.

4. Nonferrous metals forming plants in most of the subcategories discharge to POTWs. Because their wastewaters contain substantial amounts of nonconventional metals, the Agency invites comments and any supporting data concerning incompatibility of those nonconventional wastewaters with the POTW treatment systems or sludge disposition.

5. Approximately 56 percent of the facilities in the nonferrous metals forming category discharge process wastewater in other industrial categories for which effluent guidelines have already been proposed or promulgated. We request comment as to whether nonferrous metals forming plants could incur disproportionate costs as a result of treating both nonferrous metals forming wastewaters and wastewaters from a different point source category when the treatment requirements are different. Commenters should provide data on nonferrous metals forming process wastewater flow as a percentage of total process wastewater flow and any available data on the comparative costs of segregating and treating the various wastestreams separately versus cotreating all the plants' wastestreams.

6. We request that commenters identify any process wastewater streams not identified by EPA which they believe should receive a discharge allowance. We also request comments on any wastewater streams for which the flow identified by EPA is inappropriate. We specifically request comments on metal cleaning operations associated with tube reducing. For any such streams, commenters should identify flow (in relation to production) and raw wastewater characteristics (pollutant concentrations).

7. The Agency is proposing BAT, BCT, NSPS, PSES, and PSNS based on Options 2 and 3 which include in-process flow reduction of many wastewater streams. We solicit comments on the ability of nonferrous metals forming plants to achieve 90 percent recycle of wet scrubber liquor; contact cooling wastewater; tumbling wastewater; and nickel, precious metals, and titanium rolling emulsions. We also solicit comments on the ability of nonferrous metals forming plants to achieve 90 percent reduction in flow of rinses from alkaline cleaning and surface treatment operations by the use of countercurrent cascade rinsing.

8. The Agency may decide to promulgate BAT, BCT, NSPS, PSES, and PSNS which include in-process flow reduction of additional wastewater streams. We solicit comments on the ability of nonferrous metals forming plants to achieve 90 percent recycle of water used in metal powder atomization.

9. The methodology used to estimate the economic effects of these regulations is discussed in Section XVII of this preamble and in the economic analysis report. We solicit comments on the methodology and criteria used to screen for economic impacts and on the methodology presented for financial analyses of individual plants.

10. A number of firms have not responded to the survey mailed to them under the authority of Section 308 of the Clean Water Act. The Agency asks each facility that has failed to respond to submit their responses immediately. If the questionnaire has been misplaced a duplicate of the survey will be sent directly upon request.

11. The Agency is proposing PSES and PSNS based on Options 2 and 3 technology which include flow reduction in addition to end-of-pipe treatment. The Agency invites comments and data on whether the impact of the flow reduction portion of the PSES technology on indirect dischargers would be any

different than the impact on direct dischargers.

12. We have proposed that the date for compliance with PSES be three years from the regulation's final promulgation date. We invite comments on the appropriateness of the compliance date.

13. The Agency is proposing a PNP of zero discharge for one waste stream, tube reducing spent lubricant, because analysis for toxic organics at the one plant sampled (in the nickel/cobalt forming subcategory) showed treatable concentrations of N-nitrosodiphenylamine. That waste stream has a small flow and can be most economically handled by intercepting the waste stream before mixing it with other process wastewaters and disposing of it as a hazardous waste under the Resource Conservation and Recovery Act, 42 U.S.C. 6901 *et seq.* Treatment of the wastes with activated carbon after mixing with other process wastewaters would be much more expensive. The Agency recognizes that the total amount of N-nitrosodiphenylamine discharges in the tube reducing spent lubricant is only a few pounds per year, but believes the potentially carcinogenic properties of nitrosamines justify prohibiting its discharge. We invite comment and data on the no discharge requirement for this waste stream.

14. In many industries, indirect dischargers are located in urban areas, whereas direct dischargers tend to be located in more rural areas. This can sometimes place indirect dischargers at a disadvantage in terms of space availability for installing wastewater treatment. However, EPA has concluded that space availability presents no greater problem for existing indirect dischargers than for existing direct dischargers in the nonferrous metals forming category. We request comment on this conclusion.

15. The Agency requests comments on the appropriateness of the cyanide limitations proposed for the beryllium forming, precious metals forming, titanium forming, zinc forming, zirconium/hafnium forming, and iron and steel/copper/aluminum metal powder production and powder metallurgy subcategory.

16. Section XIV of this notice outlines our application of the proposed BCT cost test to the 11 subcategories in the nonferrous metals forming category. We have compared the engineering costs for higher level options to the engineering costs for the selected BPT option, as was done in assessing BCT options in other categories. For several subcategories in the nonferrous metals forming category, the reduced annual operating costs resulting from reduced flow more than offset the annualized costs for the additional equipment, so that the annualized costs of the higher level options are less than the annualized costs for the selected BPT technology. Consequently, since there is a reduction in annualized costs, the higher level options pass the proposed BCT cost test. An alternative approach is to assume that plants affected by the proposed BPT would reduce the water flow voluntarily to take advantage of the reduced operating costs, and assign the lowest cost option (usually Option 2) as the annualized cost of the BPT technology. The latter approach was used in our economic impact analysis. If that approach is used, many of the higher level technology options would fail the proposed BCT cost test. We invite comment on these two alternatives for assessing BCT when using the proposed BCT cost test.

17. Most plants in the iron and steel/copper/aluminum metal powder production and powder metallurgy subcategory do not have the lime and settle technology selected for BPT. However, several do have settling or settling plus filtration but without lime precipitation. That technology might be sufficient for BPT if the pollutants are present mainly as undissolved metal particles, but we do not have any data demonstrating the effectiveness of settling alone for pollutant removal in that subcategory. We solicit wastewater treatment data from plants with only solids removal technology so we may assess the effectiveness of that technology.

18. The Agency will evaluate the costs of the technology options on a plant-by-plant basis before promulgating this proposed regulation. To the extent possible, we will consider the costs associated with cotreatment of wastes from all categories and subcategories included at each plant. We solicit comments and data on: (a) The extent to which cotreatment is currently practiced in the industry, (b) the extent to which cotreatment is projected to be practiced in the future, (c) the costs of cotreatment currently experienced or projected, (d) method(s) of allocating costs for cotreatment to individual product lines, and (e) the effectiveness of cotreatment in reducing pollutant discharges.

19. The Agency is not proposing PSES for the zinc forming subcategory at this time because of the impact (i.e., potential closure) on one of the two indirect discharging plants in the subcategory. We solicit comments on the necessity for and appropriateness of this exemption.

This regulation was submitted to the Office of Management and Budget for review as required by Executive Order 12291. This proposed rule does not contain any information collection requirements subject to OMB review under the Paperwork Reduction Act of 1980. 44 U.S.C. 3501 *et seq.*

XXIV. List of Subjects in 40 CFR Part 471

Nonferrous metals forming, Water pollution control, Waste treatment and disposal.

Dated: February 3, 1984.

William D. Ruckelshaus,

Administrator.

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 technololgy economically achievable under Section 304(b)(2)(B) of the Act.

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

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

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

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

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

Indirect Discharger—A facility which discharges or may discharge pollutants into a publicly owned treatement 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 indirect 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—Pollutants Selected for Regulation by Subcategory

The following is a list of pollutants limited for each subcategory:

Beryllium Forming Subcategory (Subpart A)
beryllium
copper
cyanide
fluoride
oil and grease
total suspended solids
pH

Lead/Tin bismuth Forming Subcategory (Subpart B)
antimony
lead
oil and grease
total suspended solids
pH

Magnesium Forming Subcategory (Subpart C)
chromium
zinc
ammonia
fluoride
magnesium
oil and grease
total suspended solids
pH

Nickel Cobalt Forming Subcategory (Subpart D)
chromium
nickel
fluoride
oil and grease
total suspended solids
pH

Precious Metals Forming Subcategory (Subpart E)
cadmium
copper
cyanide
silver
oil and grease
total suspended solids
pH

Refractory Metals Forming Subcategory (Subpart F)
copper
nickel
fluoride
columbium
molybdenum
tantalum
tungsten
vanadium
oil and grease
total suspended solids
pH

Titanium Forming Subcategory (Subpart G)
cyanide
lead
zinc
ammonia
fluoride
titanium
oil and grease
total suspended solids
pH

Uranium Forming Subcategory (Subpart H)
cadmium
copper
nickel
ammonia
fluoride
radium
uranium
oil and grease
total suspended solids
pH

Zinc Forming Subcategory (Subpart I)
chromium
cyanide
zinc
oil and grease
total suspended solids
pH

Zirconium/Hafnium Forming Subcategory (Subpart J)
chromium
cyanide
nickel
ammonia
fluoride
hafnium
zirconium
oil and grease
total suspended solids
pH

Iron and Steel/Copper/Aluminum Metal Powder Production and Powder Metallurgy Subcategory (Subpart K)
copper
cyanide
lead
aluminum
iron
oil and grease
total suspended solids
pH

Appendix C—Toxic Pollutants Excluded From Regulation in all Subcategories

Under Paragraph 8(a)(iii) of the Settlement Agreement, EPA is excluding certain toxic pollutants from regulation in all subcategories, for one or all of the following reasons:

(a) The pollutant is not detectable in the effluent with the use of analytical methods approved pursuant to Section 304(h) of the Act or other state-of-the-art methods.

(b) The pollutant cannot be quantified in the effluent with the use of analytical methods approved pursuant to Section 304(h) of the Act or other state-of-the-art methods.

(c) The pollutant is present in amounts too small to be effectively reduced by technologies known to the Administrator.

(d) The pollutant is present in the effluent from only a small number of sources.

The reason(s) for each of the following exclusions is keyed to the above lists.

acenaphthene (a,d)
acrolein (a,d)
acrylonitrile (a)
benzene (a,b,c)
benzidene (a,d)
carbon tetrachloride (tetrachloromethane) (a,b)
chlorobenzene (a,b)
1,2,4-trichlorobenzene (a)
hexachlorobenzene (a)
1,2-dichloroethane (a,c)
1,1,1-trichloroethane (a,b,c)
hexachloroethane (a,c)
1,1-dichloroethane (a,b,d)
1,1,2-trichloroethane (a,b)
1,1,2,2-tetrachloroethane (a,b,c)
chloroethane (a)
bis (chloromethyl) ether (a)
bis (2-chloroethyl) ether (a)
2-chloroethyl vinyl ether (mixed) (a)
2-chloronaphthalene (a)
2,4,6-trichlorophenol (a)
parachlorometa cresol (a,d,c)
chloroform (trichloromethane) (a,b,c)
2-chlorophenol (a,b)
1,2-dichlorobenzene (a)
1,3-dichlorobenzene (a)
1,4-dichlorobenzene (a)
3,3'-dichlorobenzidine (a,d)
1,1-dichloroethylene (a,b,c,d)
1,2-trans-dichloroethylene (a,d)
2,4-dichlorophenol (a)
1,2-dichloropropane (a)
1,2-dichloropropylene (1,3-dichloropropene) (a)
2,4-dimethylphenol (a,c,d)
2,4-dinitrotoluene (a,d)
2,6-dinitrotoluene (a,d)
1,2-diphenylhydrazine (a,b)
ethylbenzene (a,c)
fluoranthene (a,b,d)
4-chlorophenyl phenyl ether (a)
4-bromophenyl phenyl ether (a)
bis(2-chloroisopropyl) ether (a)
bis(2-chloroethoxy) methane (a,b)
methylene chloride (dichloromethane) (a,c,d)
methyl chloride (chloromethane) (a,d)
methyl bromide (bromomethane) (a)
bromoform (tribromomethane) (a)
dichlorobromomethane (a)
trichlorofluoromethane (a)
dichlorodifluoromethane (a)
chlorodibromomethane (a,b)
hexachlorobutadiene (a)
hexachlorocyclopentadiene (a)
isophorone (a)
naphthalene (d)
nitrobenzene (a,c)
2-nitrophenol (a,b,c,d)
4-nitrophenol (a,d)
2,4-dinitrophenol (a)
4,6-dinitro-o-cresol (a,d)
N-nitrosodimethylamine (a,b)
N-nitrosodiphenylamine (a,d)
N-nitrosodi-n-propylamine (a,d)
pentachlorophenol (a,d)
phenol (a,c,d)
bis(2-ethylhexyl) phthalate (a,c,d)
butyl benzyl phthalate (a,b,d)
di-n-butyl phthalate (a,b,d)
di-n-octyl phthalate (a,b,d)
diethyl phthalate (a,b,d)
dimethyl phthalate (a,b)
benzo (a)anthracene (1,2-benzanthracene) (a,b,d)
benzo (a)pyrene (3,4-benzopyrene) (a,d)
3,4-benzofluoranthene (a)
benzo(k)fluoranthane (11,12-benzofluoranthene) (a,b)
toluene (a,c,d)
trichloroethylene (a,b,c)
vinyl chloride (chloroethylene) (a,d)

aldrin (a)
dieldrin (a)
chlordane (technical mixture and metabolites) (a)
4,4'-DDT (a)
4,4'=DDE(p,p'DDX) (a)
4,4'-DDD(p,p'TDE) (a)
a-endosulfan-Alpha (a,b)
b-endosulfan-Beta (a)
endosulfan sulfate (a)
endrin (a)
endrin aldehyde (a)
heptachlor (a)
heptachlor epoxide (a)
a-BHC-Alpha (a)
b-BHC-Beta (a)
r-BHC-(lindane)-Gamma (a,b)
g-BHC-Delta (a)
PCB-1242 (Arochlor 1242) (a)
PCB-1254 (Arochlor 1254) (a)
PCB-1221 (Arochlor 1221) (a)
PCB-1232 (Arochlor 1232) (a)
PCB-1248 (Arochlor 1248) (a)
PCB-1260 (Arochlor 1260) (a)
PCB-1016 (Arochlor 1016) (a)
toxaphene (a)
arsenic, (a,b,c,d)
asbestos (fibrous) (a)
mercury (a,b,c)
selenium (a,b,d)
thallium (a,b,c,d)
2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) (a)

Appendix D—Toxic Pollutants Excluded From Regulation in Certain Subcategories

Under Paragraph 8(a)(iii) of the Settlement Agreement, EPA is excluding certain toxic pollutants from regulation in particular subcategories, for one or all of the following reasons:

(a) The pollutant is not detectable in the effluent with the use of analytical methods approved pursuant to Section 304(h) of the Act or other state-of-the-art methods.

(b) The pollutant cannot be quantified in the effluent with the use of analytical methods approved pursuant to Section 304(h) of the Act or other state-or-the-art methods.

(c) The pollutant is present in amounts too small to be effectively reduced by technologies known to the Administrator.

(d) The pollutant is present in the effluent from only a small number of sources.

(e) The pollutant will be effectively controlled by the technologies upon which are based other effluent limitations and guidelines, standards of performance, or pretreatment standards.

The reason(s) for each of the following exclusions is keyed to the above list.

Beryllium Forming Subcategory (Subpart A)

antimony (b)
cadmium (e)
chromium (e)
lead (b)
nickel (e)
silver (c)
zinc (e)

The toxic pollutants limited are beryllium, copper, and cyanide.

Lead/Tin/Bismuth Forming Subcategory (Subpart B)

beryllium (c)
cadmium (c)
chromium
copper (d)
cyanide (d)
nickel (c)
silver (b)
zinc (e)

The toxic pollutants limited are antimony and lead.

Magnesium Forming Subcategory (Subpart C)

antimony (c)
beryllium (d)
cadmium (b)
copper (c)
cyanide (d)
lead (d)
nickel (b)
silver (c)

The toxic pollutants limited are chromium and zinc.

Nickel/Cobalt Forming Subcategory (Subpart D)

antimony (d)
beryllium (d)
cadmium (e)
copper (3)
cyanide (d)
lead (e)
silver (d)
zinc (e)

The toxic pollutants limited are chromium and nickel.

Precious Metals Forming Subcategory (Subpart E)

antimony (c)
beryllium (b)
chromium (e)
lead (e)
nickel (e)
zinc (e)

The toxic pollutants limited are cadmium, copper, cyanide, and silver.

Refactory Metals Forming Subcategory (Subpart F)

antimony (c)
beryllium (c)
cadmium (e)
chromium (e)
cyanide (d)
lead (d)
silver (e)
zinc (e)

The toxic pollutants limited are copper and nickel.

Titanium Forming Subcategory (Subpart G)

antimony (c)
beryllium (b)
cadmium (b)
chromium (e)
copper (e)
nickel (e)
silver (b)

The toxic pollutants limited are cyanide, lead, and zinc.

Uranium Forming Subcategory (Subpart H)

antimony
beryllium
chromium
cyanide
lead
silver
zinc

The toxic pollutants limited are cadmium, copper, and nickel.

Zinc Forming Subcategory (Subpart I)

antimony (b)
beryllium (b)
cadmium (b)
copper (b)
lead (b)
nickel (e)
silver (b)

The toxic pollutants limited are chromium, cyanide, and zinc.

Zirconium /Hafnium Forming Subcategory (Subpart J)

antimony (e)
beryllium (b)
cadmium (d)
copper (d)
lead (e)
silver (b)
zinc (d)

The toxic pollutants limited are chromium, cyanide, and nickel.

Iron and Steel/Copper/Aluminum Metal Powder Production and Powder Metallurgy Subcategory (Subpart K)

antimony (c)
beryllium (b)
cadmium (b)
chromium (e)
nickel (e)
silver (b)
zinc (e)

The toxic pollutants limited are copper, cyanide, and lead.

Appendix E—Subcategories Excluded

Paragraph 8(a)(iv) of the Settlement Agreement authorizes the Administrator to exclude from regulation subcategories in which the amount and toxicity of each pollutant in the discharge does not justify developing national regulations. Paragraph 8(b) of the Settlement Agreement authorizes the Administrator to exclude from pretreatment standards a subcategory if: (i) 95 percent or more of all point sources in the subcategory introduce into POTWs only pollutants which are susceptible to treatment by the POTW and which do not interfere with, do not pass through, or are not otherwise incompatible with such treatment works; or (ii) the toxicity and amount of the incompatible pollutants introduced by such point sources into POTWs is so insignificant that

developing a pretreatment regulation is not justified.

1. The following subcategories are proposed for exclusion because there are no discharges from the subcategory (Paragraph 8(a)(iv)):

cadmium forming
chromium forming
gallium forming
germanium forming
indium forming
lithium forming
manganese forming
neodymium forming
praseodymium forming

2. The following subcategory is proposed for exclusion from further national PSES regulation development under Paragraph 8(b) of the Settlement Agreement because there are no existing indirect dischargers in the subcategory:

beryllium forming

A new Part 471 is proposed to be added to 40 CFR to read as follows:

PART 471—NONFERROUS METALS FORMING AND IRON AND STEEL/ COPPER/ALUMINUM METAL POWDER PRODUCTION AND POWDER METALLURGY POINT SOURCE CATEGORY

General Provisions

Sec.
471.01 Applicability.
471.02 General definitions.
471.03 Monitoring requirements.
471.04 Compliance date for pretreatment.

Subpart A—Beryllium Forming Subcategory

471.10 Applicability; description of the beryllium forming subcategory.
471.11 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).
471.12 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).
471.13 New source performance standards (NSPS).
471.14 Pretreatment standards for existing sources. [Reserved]
471.15 Pretreatment standards for new sources (PSNS).
471.16 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT).

Subpart B—Lead/Tin/Bismuth Forming Subcategory

471.20 Applicability; description of the lead/tin/bismuth forming subcategory.
471.21 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).
471.22 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).
471.23 New source performance standards (NSPS).
471.24 Pretreatment standards for existing sources (PSES).
471.25 Pretreatment standards for new sources (PSNS).
471.26 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT).

Subpart C—Magnesium Forming Subcategory

471.30 Applicability; description of the magnesium forming subcategory.
471.31 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).
471.32 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).
471.33 New source performance standards (NSPS).
471.34 Pretreatment standards for existing sources (PSES)
471.35 Pretreatment standards for new sources (PSNS).
471.36 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT).

Subpart D—Nickel-Cobalt Forming Subcategory

471.40 Applicability; description of the nickel/cobalt forming subcategory.
471.41 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).
471.42 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).
471.43 New source performance standards (NSPS).
471.44 Pretreatment standards for existing sources (PSES).
471.45 Pretreatment standards for new sources (PSNS).
471.46 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT).

Subpart E—Precious Metals Forming Subcategory

471.50 Applicability; description of the precious metals forming subcategory.
471.51 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).
471.52 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).
471.53 New source performance standards (NSPS).
471.54 Pretreatment standards for existing sources (PSES).
471.55 Pretreatment standards for new sources (PSNS).
471.56 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT).

Subpart F—Refractory Metals Forming Subcategory

471.60 Applicability; description of the refractory metals forming subcategory.
471.61 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).
471.62 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).
471.63 New Source performance standards (NSPS).
471.64 Pretreatment standards for existing sources (PSES).
471.65 Pretreatment standards for new sources (PSNS).
471.66 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT).

Subpart G—Titanium Forming Subcategory

471.70 Applicability; description of the titanium forming subcategory.
471.71 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).
471.72 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).
471.73 New source performance standards (NSPS).
471.74 Pretreatment standards for existing sources (PSES).
471.75 Pretreatment standards for new sources PSNS).
471.76 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT).

Subpart H—Uranium Forming Subcategory

471.80 Applicability; description of the uranium forming subcategory.
471.81 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).
471.82 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).

Authority: Secs. 301, 304 (b), (c), (e), and (g), 306(b) and (c), 307, 308, and 501 of the Clean Water Act (the Federal Water Pollution Control Amendments of 1972 as amended by the Clean Water Act of 1977) (the "Act"); 13 U.S.C. 1311, 1314 (b), (c), (e), and (g), 1316 (b) and (c), and 1361; 86 Stat. 816, Pub. L. 92-500; 91 Stat. 1567, Pub. 95-217.

General Provisions

§ 471.01 Applicability.

(a) This part applies to discharges of pollutants to waters of the United States and introduction of pollutants into a publicly owned treatment works from the forming of nonferrous metals, except copper and aluminum, and nonferrous metal alloys, except alloys which contain 50 percent or more by weight of copper or aluminum. The forming operations covered are not rolling, cold rolling, drawing, extrusion, forging, metal powder production, powder metallurgy, cladding, sawing, grinding, tumbling, burnishing, and tube reducing. This part also covers ancillary operations associated with these forming operations including surface and heat treatment, hydrotesting, surface coating, wet air pollution control scrubbers, and casting (when it is an integral part or a nonferrous metal forming operation, e.g., shot-casting and casting of billets, ingots, bars, and strip which are subsequently formed on-site).

(b) This part applies to discharges of pollutants to waters of the United States and introduction of pollutants into a publicly owned treatment works from metal powder production which does not significantly increase the purity of the metal, and powder metallurgy of: (1) Iron, steel, copper, and aluminum, and (2) alloys which contain 50 percent or more by weight of iron, steel, copper, or aluminum. This part also covers ancillary operations associated with these forming operations including surface and heat treatment, surface coating, and wet air pollution control scrubbers.

(c) Discharges covered by this Part 471 are not subject to the effluent limitations guidelines, pretreatment standards, and new source performance standards for the electroplating and metal finishing point source categories, 40 CFR Parts 413 and 433.

§ 471.01 General definitions.

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

(a) "Nonferrous metal" is any pure metal other than iron or any metal alloy for which a metal other than iron is its major constituent in percent by weight.

(b) "Nonferrous metals forming" is a set of manufacturing operations in which nonferrous metals and nonferrous alloys are made into semifinished products by hot or cold working.

(c) "Alkaline cleaning" uses a solution, usually detergent, to remove lard, oil, and other such compounds from a metal surface.

(d) "Atomization" is the process in which a stream of water or gas impinges upon a molten metal stream, breaking it into droplets which solidify as powder particles.

(e) "Burnishing" is a surface finishing process in which minute surface irregularities are displaced rather than removed.

(f) "Cladding" or "metal clading" is the art of producing a composite metal containing two or more layers that have been metallurgically bonded together by roll bonding (co-rolling), solder application (or brazing) and explosion bonding.

(g) "Contact cooling water" is any wastewater which contacts the nonferrous metal workpiece or the raw materials used in forming nonferrous metals.

(h) "Continuous casting" is the production of sheet, rod, or other long shapes by solidifying the metal while it is being poured through an open-ended mold.

(i) "Direct chill casting" is the pouring of molten nonferrous metal into a water-cooled mold. Contact cooling water is sprayed onto the metal as it is dropped into the mold, and the metal ingot falls into a water bath at the end of the casting process.

(j) "Drawing" is the process of pulling a metal through a die or succession of dies to reduce the metal's diameter or alter its shape.

(k) "Emulsions" are stable dispersions of two immiscible liquids. In the nonferrous metals forming category this is usually an oil and water mixture.

(l) "Extrusion" is the application of pressure to a billet of nonferrous metal, forcing the metal to flow through a die orifice.

(m) "Forging" is deforming metal, usually hot, with compressive force into desired shapes, with or without dies. Where dies are not used, the metal is forced to take the shape of the die.

(n) "Grinding" is the process of removing stock from a workpiece by the use of a tool consisting of abrasive grains held by a rigid or semi-rigid grinder. Grinding includes surface finishing, sanding, and slicing.

(o) "Heat treatment" is the application of heat of specified temperature and duration to change the physical properties of the metal.

(p) "In-process control technology" is the conservation of chemicals and water throughout the production operations to reduce the amount of wastewater to be discharged.

(q) "Metal powder production" operations are any process operations which convert metal to a finely divided form without an increase in metal purity.

(r) "Neat oil" is a pure oil with no or few impurities added. In nonferrous metals forming its use is mostly as a lubricant.

(s) "Powder metallurgy" is the art of producing metal powders and using metal powders for the production of massive materials (ingots, billets) and shaped objects (parts).

(t) "Rolling" is the reduction in thickness or diameter of a workpice by passing it between lubricated steel rollers.

(u) "Roll bonding" is the process by which a permanent bond is created between two metals by rolling under high pressure in a bonding mill (co-rolling).

(v) "Sawing" is cutting a workpiece with a band, blade, or circular disc having teeth.

(w) "Stationary casting" is the pouring of molten nonferrous metal into molds and allowing the metal to cool.

(x) "Surface treatments" are operations such as pickling, etching, conversion coating, phosphating, and chromating which chemically alter the metal surface.

(y) "Tumbling" or "barrel finishing" is an operation in which castings, forgings, or parts pressed from metal powder are rotated in a barrel with ceramic or metal slugs or abrasives to remove scale, fins, or burrs. It may be done dry or with an aqueous solution.

(z) "Wet scrubbers" are air pollution control devices used to remove particulates and fumes from air by entraining the pollutants in a water spray.

(aa) "Grab sample" is a single sample which is collected at a time and place most representative of total discharge.

(bb) "Composite sample" is a sample composed of no less than eight grab samples taken over the compositing period.

(cc) A "flow proportional composite sample" is composed of grab samples collected continuously or discretely in proportion to the total flow at time of collection or to the total flow since collection of the previous grab sample. The grab volume or frequency of grab collection may be varied in proportion to flow.

(dd) The term "control authority" is defined as the POTW if it has an approved pretreatment program; in the absence of such a program, the NPDES State if it has an approved pretreatment program or EPA if the State does not have an approved program.

(ee) "Continuous operations" means that the industrial user introduces regulated wastewaters to the POTW throughout the operating hours of the facility, except for infrequent shutdowns for maintenance, process changes, or other similar activities.

(ff) "Intermittent operations" means the industrial user does not have a continuous operation.

(gg) The "production normalizing mass" (/kkg) for each operation is the mass (off-kg or off-lb) processed through that operation.

(hh) The term "off-kilogram (off-pound)" means the mass of metal or metal alloy removed from a forming operation at the end of a process cycle for transfer to a different machine or process.

§ 471.03 Monitoring requirements.

The "monthly average" regulatory values shall be the basis for the monthly average discharge limits 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.

§ 471.04 Compliance date for pretreatment.

The compliance date for PSES under this regulation is proposed to be three years after the date of promulgation.

Subpart A—Beryllium Forming Subcategory

§ 471.10 Applicability; description of the beryllium forming subcategory.

This subpart applies to discharges of pollutants to waters of the United States, and introductions of pollutants into publicly owned treatment works from the process operations of the beryllium forming subcategory.

§ 471.11 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

Except as provided in 40 CFR 125.30—125.32, any existing point source subject to this subpart must achieve the following effluent limitations for the process operations of the beryllium forming subcategory representing the degree of effluent reduction attainable by the application of the best practicable control technolbgy currently available (BPT):

(a) Area cleaning wastewater.

SUBPART A—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pounds) formed	(pound/billion of beryllium
Beryllium	26,000	11,000
Copper	40,000	21,000
Cyanide	6,200	2,600
Fluoride	1,300,000	560,000
Oil and grease	430,000	260,000
TSS	870,000	420,000
pH	(1)	(1)

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

(b) Billet washing wastewater.

SUBPART A—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pounds)	(pound/billion of beryllium billets washed
Beryllium	47.0	19.0
Copper	73.0	39.0
Cyanide	11.0	4.0
Fluoride	2,300.0	1,000.0
Oil and grease	760.0	460.0
TSS	1,600.0	740.0
pH	(1)	(1)

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

(c) Surface treatment spent baths.

SUBPART A—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pounds)	(pound/billion of beryllium surface treated
Beryllium	3,300	1,400
Copper	5,100	2,700
Cyanide	770	320
Fluoride	160,000	70,000
Oil and grease	53,000	32,000
TSS	110,000	52,000
pH	(1)	(1)

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

(d) Surface treatment rinsewater.

SUBPART A—BPT

Pollutant or pollutant property	Maximum for any one day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of beryllium surface treated	
Beryllium	9,400	3,900
Copper	15,000	7,700
Cyanide	2,200	920
Fluoride	460,000	200,000
Oil and grease	150,000	92,000
TSS	310,000	150,000
pH	(1)	(1)

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

(e) Sawing/grinding spent lubricants.

SUBPART A—BPT

Pollutant or pollutant property	Maximum for any one day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of beryllium sawed or ground	
Beryllium	520	220
Copper	810	420
Cyanide	120	51
Fluoride	25,000	11,000
Oil and grease	8,500	5,100
TSS	17,000	8,300
pH	(1)	(1)

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

(f) Inspection/testing water.

There shall be no discharge of process wastewater pollutants.

(g) Spent degreasing solvent.

There shall be no discharge of process wastewater pollutants.

§ 471.12 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).

Except as provided in 40 CFR 125.30–125.32, 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 available technology economically achievable (BAT):

(a) Area cleaning wastewater.

SUBPART A—BAT

Pollutant or pollutant property	Maximum for any one day	Maximum for monthly average
	mg/kkg pounds) formed	(pound/billion of beryllium
Beryllium	17,000	7,200
Copper	27,000	13,000
Cyanide	4,300	1,700
Fluoride	1,390,000	560,000

(b) Billet washing wastewater.

SUBPART A—BAT

Pollutant or pollutant property	Maximum for any one day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of beryllium billets washed	
Beryllium	31.0	13.0
Copper	43.0	23.0
Cyanide	7.6	3.1
Fluoride	2,300.0	1,000.0

(c) Surface treatment spent baths.

SUBPART A—BAT

Pollutant or pollutant property	Maximum for any one day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of beryllium surface treated	
Beryllium	250	100
Copper	330	130
Cyanide	62	25
Fluoride	18,000	8,100

(d) Surface treatment rinsewater.

SUBPART A—BAT

Pollutant or pollutant property	Maximum for any one day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of beryllium surface treated	
Beryllium	630	260
Copper	830	470
Cyanide	150	61
Fluoride	46,000	20,000

(e) Sawing/grinding spent lubricants.

SUBPART A—BAT

Pollutant or pollutant property	Maximum for any one day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of beryllium sawed or ground	
Beryllium	350	140
Copper	540	230
Cyanide	83	34
Fluoride	25,000	11,000

(f) Inspection/testing water.

There shall be no discharge of process wastewater pollutants.

(g) Spent degreasing solvent.

There shall be no discharge of process wastewater pollutants.

§ 471.13 New source performance standards (NSPS).

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

(a) Area cleaning wastewater.

SUBPART A—NSPS

Pollutant or pollutant property	Maximum for any one day	Maximum for monthly average
	mg/kkg pounds) formed	(pound/billion of beryllium
Beryllium	17,000	7,200
Copper	27,000	13,000
Cyanide	4,300	1,700
Fluoride	1,390,000	560,000
Oil and grease	210,000	210,000
TSS	320,000	260,000
pH	(1)	(1)

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

(b) Billet washing wastewater.

SUBPART A—NSPS

Pollutant or pollutant property	Maximum for any one day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of beryllium billets washed	
Beryllium	31.0	13.0
Copper	43.0	23.0
Cyanide	7.6	3.1
Fluoride	2,300.0	1,000.0
Oil and grease	330.0	330.0
TSS	570.0	460.0
pH	(1)	(1)

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

(c) Surface treatment spent baths.

SUBPART A—NSPS

Pollutant or pollutant property	Maximum for any one day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of beryllium surface treated	
Beryllium	250	100
Copper	330	130
Cyanide	62	25
Fluoride	18,000	8,100
Oil and grease	3,100	3,100
TSS	4,600	3,700
pH	(1)	(1)

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

(d) Surface treatment rinsewater.

SUBPART A—NSPS

Pollutant or pollutant property	Maximum for any one day	Maximum for monthly average
	mg/kkg (pound billion pounds) of beryllium surface treated	
Beryllium	630	260
Copper	830	470
Cyanide	150	61
Fluoride	46,000	20,000
Oil and grease	7,700	7,700
TSS	12,000	9,200
pH	(1)	(1)

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

(e) Sawing/grinding spent lubricants.

SUBPART A—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of beryllium sawed or ground	
Beryllium	350	140
Copper	540	260
Cyanide	85	34
Fluoride	25,000	11,000
Oil and grease	4,200	4,200
TSS	6,400	5,100
pH	(1)	(1)

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

(f), Inspection/testing water.

There shall be no discharge of process wastewater pollutants.

(g) Spend degreasing solvent.

There shall be no discharge of process wastewater pollutants.

§ 471.14 Pretreatment standards for existing sources [Reserved]

§ 471.15 Pretreatment standards for new sources (PSNS).

Except as provided in 40 CFR 403.7, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources: The limitations for beryllium, copper, cyanide, and fluoride are the same as specified in § 471.13.

§ 471.16 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT).

Except as provided in 40 CFR 125.30—125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by application of the best conventional pollutant control technology (BCT): The limitations for TSS, oil and grease, and pH are the same as specified in § 471.11.

Subpart B—Lead/Tin/Bismuth Forming Subcategory

§ 471.20 Applicability; description of the lead/tin/bismuth forming subcategory.

This subpart applies to discharges of pollutants to waters of the United States, and introductions of pollutants into publicly owned treatment works from the process operations of the lead/tin/bismuth forming subcategory.

§ 471.21 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

Except as provided in 40 CFR 125.30—125.32, any existing point source subject to this subpart must achieve the following effluent limitations for the process operations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT):

(a) Rolling spent emulsions.

SUBPART B—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of lead/tin/bismuth rolled with emulsions	
Antimony	67.0	30.0
Lead	10.0	4.7
Oil and grease	470.0	280.0
TSS	960.0	450.0
pH	(1)	(1)

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

(b) Rolling spent soap solutions.

SUBPART B—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of lead/tin/bismuth rolled with soap solutions	
Antimony	120.0	55.0
Lead	18.0	8.6
Oil and grease	860.0	520.0
TSS	1,800.0	840.0
pH	(1)	(1)

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

(c) Drawing spent neat oils.

There shall be no discharge of process wastewater pollutants.

(d) Drawing spent emulsions.

SUBPART B—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of lead/tin/bismuth drawn with emulsions	
Antimony	48.0	21.0
Lead	7.0	3.3
Oil and grease	330.0	200.0
TSS	680.0	330.0
pH	(1)	(1)

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

(e) Drawing spent soap solutions.

SUBPART B—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of lead/tin/bismuth drawn with soap solutions	
Antimony	21.0	10.0
Lead	3.1	1.5
Oil and grease	150.0	90.0
TSS	310.0	150.0
pH	(1)	(1)

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

(f) Extrusion press and solution heat treatment contact cooling water.

SUBPART B—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of lead/tin/bismuth heat treated	
Antimony	5,000	2,200
Lead	740	350
Oil and grease	35,000	21,000
TSS	72,000	34,000
pH	(1)	(1)

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

(g) Extrusion press hydraulic fluid leakage.

SUBPART B—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of lead/tin/bismuth extruded	
Antimony	140	63
Lead	21	10
Oil and grease	930	590
TSS	2,000	960
pH	(1)	(1)

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

(h) Continuous strip casting contact cooling water.

SUBPART B—BPT

Pollutant or pollutant property	maximum for any one day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of lead/tin/bismuth cast by the continuous strip method	
Antimony	2.90	1.30
Lead	40	20
Oil and grease	20.00	12.00
TSS	41.00	20.00
pH	(1)	(1)

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

(i) Semi-continuous ingot casting contact cooling water.

SUBPART B—BPT

Pollutant or pollutant property	maximum for any one day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of lead/tin/bismuth ingot cast by the semi-continuous method	
Antimony	84.0	38.0
Lead	12.0	5.9
Oil and grease	590.0	350.0
TSS	1,200.0	570.0
pH	(1)	(1)

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

(j) Shot casting contact cooling water.

SUBPART B—BPT

Pollutant or pollutant property	maximum for any one day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of lead/tin/bismuth cast	
Antimony	120.0	54.0
Lead	18.0	8.4
Oil and grease	840.0	500.0
TSS	1,700.0	820.0
pH	(1)	(1)

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

(k) Shot-forming wet APC blowdown.

SUBPART B—BPT

Pollutant or pollutant property	maximum for any one day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of lead/tin/bismuth shot formed	
Antimony	.20	.10
Lead	.00	.00
Oil and grease	1.70	1.00
TSS	3.50	1.70
pH	(1)	(1)

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

(l) Alkaline cleaning spent baths.

SUBPART B—BPT

Pollutant or pollutant property	maximum for any one day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of lead/tin/bismuth alkaline cleaned	
Antimony	1,700	760
Lead	250	120
Oil and grease	12,000	7,300
TSS	25,000	12,000
pH	(1)	(1)

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

(m) Alkaline cleaning rinsewater.

SUBPART B—BPT

Pollutant or pollutant property	maximum for any one day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of lead/tin/bismuth alkaline cleaned	
Antimony	19,000	8,200
Lead	2,700	1,300
Oil and grease	130,000	78,000
TSS	260,000	130,000
pH	(1)	(1)

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

(n) Swaging spent emulsions.

SUBPART B—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of lead/tin/bismuth swaged with emulsions	
Antimony	5.10	2.30
Lead	.70	.40
Oil and grease	35.00	21.00
TSS	73.00	35.00
pH	(1)	(1)

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

(o) Degreasing spent solvents.

There shall be no discharge of process wastewater pollutants.

(p) Miscellaneous nondescript wastewater sources.

SUBPART B—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of lead/tin/bismuth formed	
Antimony	170	75
Lead	25	12
Oil and grease	1,200	700
TSS	2,400	1,100
pH	(1)	(1)

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

§ 471.22 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).

Except as provided in 40 CFR 125.30—125.32, 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 available technology economically achievable (BAT):

(a) Rolling spent emulsions.

SUBPART B—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of lead/tin/bismuth rolled with emulsion	
Antimony	67.0	30.0
Lead	10.0	4.7

(b) Rolling spent soap solutions.

SUBPART B—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of lead/tin/bismuth rolled with soap solutions	
Antimony	120.0	55.0
Lead	18.0	8.6

(c) Drawing spent neat oils.

There shall be no discharge of process wastewater pollutants.

(d) Drawing spent emulsions.

SUBART B—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg pound/billion pounds) of lead/tin/bismuth drawn with emulsions	
Antimony	43.0	21.0
Lead	7.0	3.3

(e) Drawing spent soap solutions.

SUBPART B—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of lead/tin/bismuth drawn with soap solutions	
Antimony	21.0	10.0
Lead	3.1	1.5

(f) Extrusion press and solution heat treatment contact cooling water..

SUBPART B—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of lead/tin/bismuth heat treated	
Antimony	500	220
Lead	74	35

(g) Extrusion press hydraulic fluid leakage.

SUBPART B—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of lead/tin/bismuth extruded	
Antimony	140	63
Lead	21	10

(h) Continuous strip casting contact cooling water.

SUBPART B—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of lead/tin/bismuth cast by the continuous strip method	
Antimony	2.90	1.30
Lead	.40	.20

(i) Semi-continuous ingot casting contact cooling water.

SUBPART B—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
Antimony	8.40	3.80
Lead	1.20	.60

(j) Shot casting contact cooling water.

SUBPART B—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of lead/tin/bismuth shot cast	
Antimony	12.00	5.40
Lead	1.80	.80

(k) Shot-forming wet APC blowdown.

SUBPART B—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of lead/tin/bismuth shot formed	
Antimony	.00	.00
Lead	.00	.00

(l) Alkaline cleaning spent baths.

SUBPART B—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of lead/tin/bismuth alkaline cleaned	
Antimony	1,700	780
Lead	250	120

(m) Akaline cleaning rinsewater.

SUBPART B—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of lead/tin/bismuth akaline cleaned	
Antimony	1,900	830
Lead	270	130

(n) Swaging spent emulsions.

SUBPART B—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of lead/tin/bismuth swaged with emulsions	
Antimony	5.10	2.30
Lead	.70	.40

(o) Degreasing spent solvents.

There shall be no discharge of process wastewater pollutants.

(p) Miscellaneous nondescript wastewater sources.

SUBPART B—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of lead/tin/bismuth formed	
Antimony	170	75
Lead	25	12

§ 471.23 New source performance standards (NSPS).

Any new source subject to this subpart must achieve the following new source performance standards: The limitations for antimony and lead are the same as specified in § 471.22. The limitations for TSS, oil and grease, and pH are the same as specified in § 471.26.

§ 471.24 Pretreatment standards for existing sources (PSES).

Except as provided in 40 CFR 403.7 and 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and by 36 months after promulgation achieve the following pretreatment standards for existing sources (PSES): The limitations for antimony and lead are the same as specified in § 471.22.

§ 471.25 Pretreatment standards for new sources (PSNS).

Except as provided in 40 CFR 403.7, any new sources 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 limitations for antimony and lead are the same as specified in § 471.22.

§ 471.26 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT).

Except as provided in 40 CFR 125.30–125.32, 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 conventional pollutant control technology (BCT):

(a) Rolling spent emulsions.

SUBPART B—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average.
	mg/kkg (pound/billion pounds) of lead/tin/bismuth rolled with emulsions	
Oil and grease	470	280
TSS	960	450
pH	(1)	(1)

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

(b) Rolling spent soap solutions.

SUBPART B—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average.
	mg/kkg (pound/billion pounds) of lead/tin/bismuth rolled with soap solutions	
Oil and grease	860	520
TSS	1,800	840
pH	(1)	(1)

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

(c) Drawing spent neat oils.

There shall be no discharge of process wastewater pollutants.

(d) Drawing spent emulsions.

SUBPART B—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of lead/tin/bismuth drawn with emulsions	
Oil and grease	330	200
TSS	680	330
pH	(1)	(1)

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

(e) Drawing spent soap solutions.

SUBPART B—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of lead/tin/bismuth drawn with soap solutions	
Oil and grease	150	90
TSS	310	150
pH	(1)	(1)

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

(f) Extrusion press and solution heat treatment contact cooling water.

SUBPART B—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of lead/tin/bismuth drawn with emulsions	
Oil and grease	3,500	2,100
TSS	7,200	3,400
pH	(1)	(1)

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

(g) Extrusion press hydraulic fluid leakage.

SUBPART B—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of lead/tin/bismuth extruded	
Oil and grease	930	590
TSS	2,000	960
pH	(1)	(1)

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

(h) Continuous strip casting contact cooling water.

SUBPART B—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of lead/tin/bismuth drawn with emulsions	
Oil and grease	20	12

SUBPART B—BCT—Continued

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
TSS	41	20
pH	(1)	(1)

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

(i) Semi-continuous ingot casting contact cooling water.

SUBPART B—BCT

Pollutant or pollutant property	Maximum for any one day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of lead/tin/bismuth ingot cast by the semi-continuous method	
Oil and grease	59	35
TSS	120	57
pH	(1)	(1)

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

(j) Shot casting contact cooling water.

SUBPART B—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of lead/tin/bismuth shot cast	
Oil and grease	84	59
TSS	170	82
pH	(1)	(1)

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

(k) Shot-forming wet APC blowdown.

SUBPART B—BCT

Pollutant or pollutant property	Maximum for any one day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of lead/tin/bismuth shot formed	
Oil and grease	.20	.10
TSS	.40	.20
pH	(1)	(1)

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

(l) Alkaline cleaning spent baths.

SUBPART B—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of lead/tin/bismuth alkaline cleaned	
Oil and grease	13,000	7,800
TSS	26,000	13,000
pH	(1)	(1)

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

(m) Alkaline cleaning rinsewater.

SUBPART B—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of lead/tin/bismuth alkaline cleaned	
Oil and grease	13,000	7,800
TSS	26,000	13,000
pH	(1)	(1)

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

(n) Swaging spent emulsions.

SUBPART B—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of lead/tin/bismuth swaged with emulsions	
Oil and grease	35	21
TSS	73	35
pH	(1)	(1)

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

(o) Degreasing spent solvents.

There shall be no discharge or process wastewater pollutants.

(p) Miscellaneous nondescript wastewater sources.

SUBPART B—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of lead/tin/bismuth formed	
Oil and grease	1,200	700
TSS	2,400	1,100
pH	(1)	(1)

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

Subpart C—Magnesium Forming Subcategory

§ 471.30 Applicability; description of the magnesium forming subcategory.

This subpart applies to discharges of pollutants to waters of the United States, and introductions of pollutants into publicly owned treatment works from the process operations of the magnesium forming subcategory.

§ 471.31 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

Except as provided in 40 CFR 125.30–125.32, any existing point source subject to this subpart must achieve the following effluent limitations for the process operations representating the degree of effluent reduction attainable by the application of the best

practicable control technology currently available (BPT):

(a) Rolling spent emulsions.

There shall be no discharge of process wastewater pollutants.

(b) Forging spent lubricants.

There shall be no discharge of process wastewater pollutants.

(c) Forging wet APC blowdown.

SUBPART C—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of magnesium forged	
Chromium	120,000	48,000
Zinc	390,000	160,000
Ammonia	35,000,000	16,000,000
Fluoride	16,000,000	7,000,000
Magnesium	550,000	240,000
Oil and grease	5,300,000	3,200,000
TSS	11,000,000	5,200,000
pH	(1)	(1)

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

(d) Forging solution heat treatment contact cooling water.

SUBPART C—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of forged magnesium heat treated	
Chromium	2,800	1,100
Zinc	9,200	3,900
Ammonia	840,000	370,000
Fluoride	380,000	170,000
Magnesium	13,000	5,800
Oil and grease	130,000	76,000
TSS	260,000	120,000
pH	(1)	(1)

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

(e) Forging equipment cleaning wastewater.

SUBPART C—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of magnesium forged	
Chromium	710	290
Zinc	2,400	990
Ammonia	220,000	95,000
Fluoride	96,000	43,000
Magnesium	3,300	1,500
Oil and grease	32,000	19,000
TSS	66,000	32,000
pH	(1)	(1)

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

(f) Direct Chill Casting Contact Cooling Water.

There shall be no discharge of process wastewater pollutants.

(g) Surface treatment spent baths.

SUBPART C—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of magnesium surface treated	
Chromium	200	84
Zinc	680	280
Ammonia	62,000	27,000
Fluoride	28,000	12,000
Magnesium	950	420
Oil and grease	9,300	5,600
TSS	19,000	9,100
pH	(1)	(1)

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

(h) Surface treatment rinsewater.

SUBPART C—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of magnesium surface treated	
Chromium	7,800	3,200
Zinc	26,000	11,000
Ammonia	2,400,000	1,000,000
Fluoride	1,100,000	470,000
Magnesium	36,000	16,000
Oil and grease	350,000	210,000
TSS	730,000	350,000
pH	(1)	(1)

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

(i) Sawing/grinding spent lubricants.

There shall be no discharge of process wastewater pollutants.

(j) Sanding and repairing wet APC blowdown.

SUBPART C—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of magnesium sanded and repaired	
Chromium	190	77
Zinc	620	260
Ammonia	57,000	25,000
Fluoride	25,000	11,000
Magnesium	880	390
Oil and grease	8,600	5,100
TSS	18,000	8,300
pH	(1)	(1)

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

(k) Degreasing spent solvents.

There shall be no discharge of process wastewater pollutants.

§ 471.32 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).

Except as provided in 40 CFR 125.30–125.32, 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 available technology economically achievable (BAT):

(a) Rolling spent emulsions.

There shall be no discharge of process wastewater pollutants.

(b) Forging spent lubricants.

The shall be no discharge of process wastewater pollutants.

(c) Forging wet APC blowdown.

SUBPART C—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of magnesium forged	
Chromium	98,000	40,000
Zinc	270,000	110,000
Ammonia	35,000,000	16,000,000
Fluoride	16,000,000	7,000,000
Magnesium	180,000	80,000

(d) Forging solution heat treatment contract colling water.

SUBPART C—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of forged magnesium heat treated	
Chromium	230	95
Zinc	650	270
Ammonia	84,000	37,000
Fluoride	38,000	17,000
Magnesium	440	190

(e) Forging equipment cleaning wastewater.

SUBPART C—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of magnesium forged	
Chromium	60	24
Zinc	170	68
Ammonia	22,000	9,500
Fluoride	9,600	4,300
Magnesium	110	49

(f) Direct chill casting contact cooling water.

There shall be no discharge of process wastewater pollutants.

(g) Surface treatment spent baths.

SUBPART C—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of magnesium surface treated	
Chromium	170	70
Zinc	470	200
Ammonia	62,000	27,000
Fluoride	28,000	12,000
Magnesium	320	140

(h) Surface treatment rinsewater.

SUBPART C—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billions pounds) of magnesium surface treated	
Chromium	650	270
Zinc	1,800	740
Ammonia	240,000	100,000
Fluoride	110,000	47,000
Magnesium	1,200	530

(i) Sawing/grinding spent lubricants.

There shall be no discharge of process wastewater pollutants.

(j) Sanding and repairing wet APC blowdown.

SUBPART C—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billions pounds) of magnesium sanded and repaired	
Chromium	160	64
Zinc	440	180
Ammonia	57,000	25,000
Fluoride	25,000	11,000
Magnesium	300	130

(k) Degreasing spent solvent.

There shall be no discharge of process wastewater pollutants.

§ 471.33 New source performance standards (NSPS).

Any new source subject to this subpart must achieve the following new source performance standards: The limitations for chromium, zinc, ammonia, fluoride, and magnesium are the same as specified in § 471.32. The limitations for pH, total suspended solids, and oil and grease are the same as those specified in § 471.36.

§471.34 Pretreatment standards for existing sources (PSES).

Except as provided in 40 CFR 403.7 and 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and by [36 months after promulgation] achieve the following pretreatment standards for existing sources (PSES): The limitations for chromium, zinc, ammonia, fluoride, and magnesium are the same as specified in § 471.32.

§ 471.35 Pretreatment standards for new sources (PSNS)

Except as provided in 40 CFR 403.7, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources (PSNS): The limitations for chromium, zinc, ammonia, fluoride, and magnesium are the same as specified in § 471.32.

§ 471.36 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT).

Except as provided in 40 CFR 125.30–125.32, 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 conventional pollutant control technology (BCT):

(a) Rolling spent emulsions.

There shall be no discharge of process wastewater pollutants.

(b) Forging spent lubricants.

There shall be no discharge of process wastewater pollutants.

(c) Forging wet APC blowdown.

SUBPART C—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of magnesium forged	
Oil and grease	2,700,000	2,700,000
TSS	4,000,000	3,000,000
pH	(1)	(1)

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

(d) Forging solution heat treatment contact cooling water.

SUBPART C—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of forged magnesium heat treated	
Oil and grease	6,800	6,800
TSS	9,500	7,000
pH	(1)	(1)

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

(e) Forging equipment cleaning wastewater.

SUBPART C—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of magnesium forged	
Oil and grease	1,600	1,600
TSS	2,400	1,900
pH	(1)	(1)

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

(f) Direct chill casting contact cooling water.

There shall be no discharge of process wastewater pollutants.

(g) Surface treatment spent baths.

SUBPART C—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of magnesium surface treated	
Oil and grease	4,700	4,700
TSS	7,000	5,600
pH	(1)	(1)

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

(h) Surface treatment rinsewater

SUBPART C—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of magnesium surface treated	
Oil and grease	18,000	18,000
TSS	27,000	21,000
pH	(1)	(1)

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

(i) Sawing/grinding spent lubricants.

There shall be no discharge of process wastewater pollutants.

(j) Sanding and repairing wet APC blowdown.

SUBPART C—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of magnesium sanded and repaired	
Oil and grease	4,300	4,300
TSS	6,400	5,100
pH	(1)	(1)

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

(k) Degreasing spent solvents.

There shall be no discharge of process wastewater pollutants.

Subpart D—Nickel/Cobalt Forming Subcategory

§471.40 Applicability; description of the nickel/cobalt forming subcatetory.

This subpart applies to discharges of pollutants to waters of the United States, and introductions of pollutants into publicly owned treatment works from the process operations of the nickel/cobalt forming subcategory.

§ 471.41 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

Except as provided in 40 CFR 125.30–125.32, any existing point source subject to this subpart must achieve the following effluent limitations for the process operations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT):

(a) Rolling spent neat oils.

There shall be no discharge of process wastewater pollutants.

(b) Rolling spent emulsions.

SUBPART D—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of nickel/cobalt rolled with emulsions	
Chromium	660	270
Nickel	2,900	1,900
Fluoride	89,000	39,000
Oil and grease	30,000	18,000
TSS	61,000	29,000
pH	(1)	(1)

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

(c) Rolling contact lubricant-collant water.

SUBPART D—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of nickel/cobalt rolled with contact lubricant-coolant water	
Chromium	5,900	2,400
Nickel	26,000	17,000
Fluoride	800,000	350,000
Oil and grease	270,000	160,000
TSS	550,000	260,000
pH	(1)	(1)

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

(d) Rolling solution heat treatment contact cooling water

SUBPART D—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of nickel/cobalt heat treated	
Chromium	.00	.00
Nickel	.50	.30
Fluoride	16.00	7.20
Oil and grease	5.40	3.30
TSS	11.00	5.30
pH	(1)	(1)

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

(e) Tube reducing spent lubricant.

There shall be no discharge of process wastewater pollutants.

(f) Drawing spent neat oils.

There shall be no discharge of process wastewater pollutants.

(g) Drawing spent emulsions.

SUBPART D—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of nickel/cobalt drawn with emulsion	
Chromium	42	17
Nickel	180	120
Fluoride	5,700	2,500
Oil and grease	1,900	1,100
TSS	3,900	1,900
pH	(1)	(1)

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

(h) Extrusion spent lubricants.

There shall be no discharge of process wastewater pollutants.

(i) Extrusion press and solution heat treatment contact cooling water.

SUBPART D—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of extruded nickel/cobalt heat treated	
Chromium	37	15
Nickel	160	110
Fluoride	5,000	2,200
Oil and grease	1,700	1,000
TSS	3,400	1,600
pH	(1)	(1)

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

(j) Forging, extrusion, and isostatic press hydraulic fluid leakage.

SUBPART D—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of nickel/cobalt forged, extruded, or pressed	
Chromium	55	22
Nickel	240	160
Fluoride	7,400	3,300
Oil and grease	2,500	1,500
TSS	5,100	2,400
pH	(1)	(1)

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

(k) Forging equipment cleaning wastewater.

SUBPART C—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of nickel/cobalt forged	
Chromium	720	290
Nickel	3,100	2,100
Fluoride	97,000	43,000
Oil and grease	33,000	20,000
TSS	67,000	32,000
pH	(1)	(1)

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

(l) Forging die contact cooling water.

SUBPART D—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of nickel/cobalt forged	
Chromium	650	290
Nickel	2,400	1,600
Fluoride	75,000	33,000
Oil and grease	25,000	15,000
TSS	52,000	25,000
pH	(1)	(1)

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

(m) Forging/swaging spent neat oils.

There shall be no discharge of process wastewater pollutants.

(n) Stationary and direct chill casting contact cooling water.

SUBPART D—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion lbs) of nickel/cobalt cast by the stationary or direct chill method	
Chromium	7,800	3,200
Nickel	34,000	23,000
Fluoride	1,100,000	470,000
Oil and grease	360,000	210,000
TSS	730,000	350,000
pH	(1)	(1)

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

(o) Casting/vacuum melting steam condensate.

SUBPART D—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of nickel/cobalt vacuum melted	
Chromium	74	30
Nickel	320	210
Fluoride	10,000	4,400
Oil and grease	3,400	2,000
TSS	6,900	3,300
pH	(1)	(1)

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

(p) Metal power production atomization wastewater.

SUBPART D—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of nickel/cobalt metal power	
Chromium	1,200	510
Nickel	5,500	3,600
Fluoride	170,000	75,000
Oil and grease	57,000	34,000
TSS	120,000	55,000
pH	(1)	(1)

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

(q) Annealing solution heat treatment contact cooling water.

SUBPART D—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of nickel/cobalt annealed	
Chromium	2,000	820
Nickel	8,800	5,600
Fluoride	270,000	120,000
Oil and grease	91,000	55,000
TSS	190,000	89,000
pH	(1)	(1)

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

(r) Wet APC blowdown.

SUBPART D—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of nickel/cobalt formed	
Chromium	110	45
Nickel	480	320
Fluoride	15,000	6,600
Oil and grease	5,000	3,000
TSS	10,000	4,900
pH	(1)	(1)

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

(s) Surface treatment spent baths.

SUBPART D—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of nickel/cobalt surface treated	
Chromium	330	150
Nickel	1,700	1,100
Fluoride	51,000	23,000
Oil and grease	17,000	10,000
TSS	35,000	17,000
pH	(1)	(1)

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

(t) Surface treatment rinsewater.

SUBPART D—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of nickel/cobalt surface treated	
Chromium	4,700	1,900
Nickel	20,000	13,000
Fluoride	630,000	280,000
Oil and grease	210,000	130,000
TSS	450,000	210,000
pH	(1)	(1)

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

(u) Alkaline cleaning spent baths.

SUBPART D—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of nickel/cobalt alkaline cleaned	
Chromium	130	55
Nickel	530	330
Fluoride	1,600.0	810.0
Oil and grease	610.0	370.0
TSS	1,600.0	600.0
pH	(1)	(1)

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

(v) Alkaline cleaning rinsewater.

SUBPART D—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of nickel/cobalt alkaline cleaned	
Chromium	2,000	830
Nickel	9,500	6,000
Fluoride	300,000	130,000
Oil and grease	60,000	62,000
TSS	200,000	97,000
pH	(1)	(1)

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

(w) Molten salt rinsewater.

SUBPART D—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of nickel/cobalt treated with molten salt	
Chromium	560	230
Nickel	2,500	1,600
Fluoride	76,000	34,000
Oil and grease	26,000	15,000
TSS	52,000	25,000
pH	(1)	(1)

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

(x) Ammonia rinse wastewater.

SUBPART D—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of nickel/cobalt treated with ammonia solution	
Chromium	6.9	2.8
Nickel	30.0	20.0
Fluoride	930.0	410.0
Oil and grease	310.0	190.0
TSS	640.0	310.0
pH	(1)	(1)

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

(y) Sawing/grinding spent lubricants.

SUBPART D—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of nickel/cobalt sawed or ground	
Chromium	440	180
Nickel	1,900	1,300
Fluoride	60,000	26,000
Oil and grease	20,000	12,000
TSS	41,000	20,000
pH	(1)	(1)

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

(z) Steam cleaning condensate.

SUBPART D—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of nickel/cobalt steam cleaned	
Chromium	10.0	4.2
Nickel	45.0	29.0
Fluoride	1,400.0	610.0
Oil and grease	450.0	260.0
TSS	950.0	450.0
pH	(1)	(1)

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

(aa) Hydrostatic tube testing wastewater.

SUBPART D—BPT

Pollutant or pollutant property	Maximum for any 1 day	Mmaximum for monthly average
	mg/kkg (pound billion pounds) of nickel/cobalt tube tested by the hydrostatic method	
Chromium	590	240
Nickel	2,600	1,700
Fluoried	80,000	35,000
Oil and grease	27,000	16,000
TSS	55,000	26,000
pH	(1)	(1)

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

(bb) Degreasing spent solvents.

There shall be no discharge of process wastewater pollutants.

(cc) Miscellaneous nondescript wasterwater sources

SUBPART D—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound billion pounds) of nickel/cobalt formed	
Chromium	26	11
Nickel	110	74
Fluoride	3,500	1,500
Oil and grease	1,200	700
TSS	2,400	1,100
pH	(1)	(1)

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

§ 471.42 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).

Except as provided in 40 CFR 125.30–125.32, 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 available technology economically achievable (BAT):

(a) Rolling spent neat oils.

There shall be no discharge of process wastewater pollutants.

(b) Rolling spent emulsions.

SUBPART D—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of nickel/cobalt rolled with emulsions	
Chromium	550	220
Nickel	820	550
Fluoride	89,000	39,000

(c) Rolling contact lubricant-coolant water.

SUBPART D—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of nickel/cobalt rolled with contact lubricant-coolant water	
Chromium	500	200
Nickel	740	500
Fluoride	80,000	35,000

(d) Rolling solution heat treatment contact cooling water.

SUBPART D—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of nickel/cobalt heat treated rolled	
Chromium	.00	.00
Nickel	.00	.00
Fluoride	1.60	.70

(e) Tube reducing spent lubricants.

There shall be no discharge of process wastewater pollutants.

(f) Drawing spent neat oils.

There shall be no discharge of process wastewater pollutants.

(g) Drawing spent emulsions.

SUBPART D—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of nickel/cobalt drawn with emulsions	
Chromium	35	14
Nickel	52	35
Fluoride	5,700	2,500

(h) Extrusion spent lubricants.

There shall be no discharge of process wastewater pollutants.

(i) Extrusion press and solution heat treatment contact cooling water.

SUBPART D—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
Chromium	31	12
Nickel	46	31
Fluoride	5,000	2,200

(j) Forging, extrusion, and isostatic press hydraulic fluid leakage.

SUBPART D—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of nickel/cobalt forged, extruded, or pressed	
Chromium	46	19
Nickel	68	46
Fluoride	7,400	3,300

(k) Forging equipment cleaning wastewater.

SUBPART D—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of nickel/cobalt forged	
Chromium	60	24
Nickel	90	60
Fluoride	9,700	4,300

(l) Forging die contact cooling water.

SUBPART D—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of nickel/cobalt forged	
Chromium	47	19
Nickel	69	47
Fluoride	7,500	3,300

(m) Forging/swaging spent oils.

There shall be no discharge of process wastewater pollutants.

(n) Stationary and direct chill casting contact cooling water.

SUBPART D—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of nickel/cobalt cast by the stationary or direct chill method	
Chromium	660	270
Nickel	980	660
Fluoride	110,000	47,000

(o) Casting/vacuum melting steam condensate.

SUBPART D—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of nickel/cobalt vacuum melted	
Chromium	62	25
Nickel	92	62
Fluoride	10,000	4,400

(p) Metal powder production atomization wastewater.

SUBPART D—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of nickel/cobalt metal powder atomized	
Chromium	1,100	430
Nickel	1,600	1,100
Fluoride	170,000	75,000

(q) Annealing solution heat treatment contact cooling water.

SUBPART D—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of nickel/cobalt annealed	
Chromium	170	69
Nickel	250	170
Fluoride	27,000	12,000

(r) Wet APC blowdown.

SUBPART D—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of nickel/cobalt formed	
Chromium	93	38
Nickel	140	93
Fluoride	15,000	6,600

(s) Surface treatment spent baths.

SUBPART D—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of nickel/cobalt surface treated	
Chromium	320	130
Nickel	470	320
Fluoride	51,000	23,000

(t) Surface treatment rinsewater.

SUBPART D—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion poundsbs) of nickel/cobalt surface treated	
Chromium	390	160
Nickel	580	390
Fluoride	63,000	28,000

(u) Alkaline cleaning spent baths.

SUBPART D—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of nickel/cobalt alkaline cleaned	
Chromium	110	46
Nickel	170	110
Fluoride	1,0000	8100

(v) Alkaline cleaning rinsewater.

SUBPART D—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of nickel/cobalt alkaline cleaned	
Chromium	100	75
Nickel	270	180
Fluoride	39,000	13,000

(w) Molten salt rinsewater.

SUBPART D—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of nickel/cobalt treated with molten salt	
Chromium	470	190
Nickel	700	470
Fluoride	70,000	34,000

(x) Ammonia rinse wastewater.

SUBPART D—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of nickel/cobalt treated with ammonia solution	
Chromium	58	24
Nickel	86	58
Fluoride	8000	4100

(y) Sawing/grinding spent lubricants.

SUBPART D—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of nickel/cobalt sawed or ground	
Chromium	370	150
Nickel	550	370
Fluoride	69,000	28,000

(z) Steam cleaning condensate.

SUBPART D—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of nickel/cobalt steam cleaned	
Chromium	8.6	3.5
Nickel	13.0	8.6
Fluoride	1,400.0	610.0

(aa) Hydrostatic tube testing wastewater.

SUBPART D—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of nickel/cobalt tube tested by the hydrostatic method	
Chromium	50	20
Nickel	74	50
Fluoride	8,000	3,600

(bb) Degreasing spent solvents.

There shall be no discharge of process wastewater pollutants.

(cc) Miscellaneous nondescript wastewater sources.

SUBPART D—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of nickel/cobalt formed	
Chromium	22.0	8.8
Nickel	32.0	22.0
Fluoride	3,500.0	1,500.0

§ 471.43 New source performance standards (NSPS).

Any new source subject to this subpart must achieve the following new source performance standards (NSPS): The limitations for chromium, nickel, and fluoride are the same as specified in § 471.42. The limitations for pH, total suspended solids, and oil and grease are the same as specified in § 471.46.

§ 471.44 Pretreatment standards for existing sources (PSES).

Except as provided in 40 CFR 403.7 and 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and by (36 months after promulgation) achieve the following pretreatment standards for existing sources (PSES): The limitations for chromium, nickel, and fluoride are the same as specified in § 471.42.

§ 471.45 Pretreatment standards for new sources (PSNS).

Except as provided in 40 CFR 403.7, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources (PSNS): The limitations for chromium, nickel, and fluoride are the same as specified in § 471.42.

§ 471.46 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT).

Except as provided in 40 CFR 125.30–125.32 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 conventional pollutant control technology (BCT):

(a) Rolling spent neat oils.

There shall be no discharge of process wastewater pollutants.

(b) Rolling spent emulsions.

SUBPART D—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of nickel/cobalt rolled with emulsions	
Oil and grease	15,000	15,000
TSS	22,000	18,000
pH	(1)	(1)

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

(c) Rolling contact lubricant-coolant water.

SUBPART D—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of nickel/cobalt rolled with emulsions	
Oil and grease	13,000	13,000
TSS	20,000	16,000
pH	(1)	(1)

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

(d) Rolling solution heat treatment contact cooling water.

SUBPART D—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of nickel/cobalt rolled with emulsions	
Oil and grease	.30	.30
TSS	.40	.30

SUBPART D—BCT—Continued

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
pH	(1)	(1)

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

(e) Tube reducing spent lubricants.

There shall be no discharge of process wastewater pollutants.

(f) Drawing spent neat oils.

There shall be no discharge of process wastewater pollutants.

(g) Drawing spent emulsions.

SUBPART D—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of nickel/cobalt rolled with emulsions	
Oil and grease	950	950
TSS	1,400	1,100
pH	(1)	(1)

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

(h) Extrusion spent lubricants.

There shall be no discharge of process wastewater pollutants.

(i) Extrusion press and solution heat treatment contact cooling water.

SUBPART D—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of nickel/cobalt rolled with emulsions	
Oil and grease	830	830
TSS	1,200	1,000
pH	(1)	(1)

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

(j) Forging, extrusion, and isostatic press hydraulic fluid leakage.

SUBPART D—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of nickel/cobalt rolled with emulsions	
Oil and grease	1,200	1,200
TSS	1,900	1,500
pH	(1)	(1)

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

(k) Forging equipment cleaning wastewater.

SUBPART D—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of nickel/cobalt forged	
Oil and grease	1,600	1,600
TSS	2,400	2,000
pH	(1)	(1)

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

(l) Forging die contact cooling water.

SUBPART D—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of nickel/cobalt forged	
Oil and grease	1,300	1,300
TSS	1,900	1,500
pH	(1)	(1)

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

(m) Forging/swaging spent neat oils.

There shall be no discharge of process wastewater pollutants.

(n) Stationary and direct chill casting contact cooling water.

SUBPART D—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of nickel/cobalt cast by the stationary or direct chill method	
Oil and grease	18,000	18,000
TSS	27,000	21,000
pH	(1)	(1)

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

(o) Casting vacuum melting steam condensate.

SUBPART D—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of nickel/cobalt vacuum melted	
Oil and grease	1,700	1,700
TSS	2,500	2,000
pH	(1)	(1)

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

(p) Metal powder production atomization wastewater.

SUBPART D—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of nickel/cobalt metal powder atomized	
Oil and grease	28,000	28,000
TSS	43,000	34,000
pH	(1)	(1)

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

(q) Annealing solution heat treatment contact cooling water.

SUBPART D—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of nickel/cobalt annealed	
Oil and grease	4,600	4,600
TSS	6,900	5,500
pH	(1)	(1)

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

(r) Wet APC blowdown.

SUBPART D—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of nickel/cobalt formed	
Oil and grease	2,500	2,500
TSS	3,600	3,000
pH	(1)	(1)

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

(s) Surface treatment spent baths.

SUBPART D—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of nickel/cobalt surface treated	
Oil and grease	8,600	8,600
TSS	13,000	10,000
pH	(1)	(1)

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

(t) Surface treatment rinsewater.

SUBPART D—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of nickel/cobalt surface treated	
Oil and grease	11,000	11,000
TSS	16,000	13,000
pH	(1)	(1)

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

(u) Alkaline cleaning spent baths.

SUBPART D—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of nickel/cobalt alkaline cleaned	
Oil and grease	310.0	310.0
TSS	460.0	370.0
pH	(1)	(1)

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

(v) Alkaline cleaning rinsewater.

SUBPART D—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of nickel/cobalt alkaline cleaned	
Oil and grease	5,600	5,600
TSS	7,500	6,000
pH	(1)	(1)

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

(w) Molten salt rinsewater.

SUBPART D—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of nickel/cobalt treated with molten salt	
Oil and grease	13,000	13,000
TSS	19,000	15,000
pH	(1)	(1)

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

(x) Ammonia rinse wastewater.

SUBPART D—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of nickel/cobalt treated with ammonia solution	
Oil and grease	160.0	160.0
TSS	240.0	160.0
pH	(1)	(1)

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

(y) Sawing/grinding spent lubricants.

SUBPART D—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of nickel/cobalt sawed or ground	
Oil and grease	10,000	10,000
TSS	15,000	12,000
pH	(1)	(1)

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

(z) Steam cleaning condensate.

SUBPART D—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of nickel/cobalt steam cleaned	
Oil and grease	280.0	280.0
TSS	350.0	220.0
pH	(1)	(1)

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

(aa) Hydrostatic tube testing wastewater.

SUBPART D—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of nickel/cobalt tube tested by the hydrostatic method	
Oil and grease	1,400	1,400
TSS	2,000	1,600
pH	(1)	(1)

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

(bb) Degreasing spent solvents.

There shall be no discharge of process wastewater pollutants.

(cc) Miscellaneous nondescript wastewater sources.

SUBPART D—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	g/kkg (pound per billion pounds) of nickel/cobalt formed	
Oil and grease	580.0	580.0
TSS	830.0	700.0
pH	(1)	(1)

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

Subpart E—Precious Metals Forming Subcategory

§ 471.50 Applicability; description of the precious metals forming subcategory.

This subpart applies to discharges of pollutants to waters of the United States, and introductions of pollutants into publicly owned treatment works from the process operations of the precious metals forming subcategory.

§ 471.5 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

Except as provided in 40 CFR 125.30–125.32, any existing point source subject to this subpart must achieve the following effluent limitations for the process operations representing the degree of effluent reduction attainable

by the application of the best practicable control technology currently available (BPT):

(a) Rolling spent emulsions.

SUBPART E—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	g/kkg (pound per billion pounds) of precious metals rolled with emulsions	
Cadmium	120	54
Copper	680	360
Cyanide	100	43
Silver	150	61
Oil and grease	7,200	4,300
TSS	15,000	7,000
pH	(1)	(1)

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

(b) Rolling solution heat treatment contact cooling water.

SUBPART E—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	g/kkg (pound per billion pounds) of rolled precious metals heat treated	
Cadmium	2,400	1,100
Copper	13,000	7,000
Cyanide	2,000	840
Silver	2,900	1,200
Oil and grease	140,000	84,000
TSS	290,000	140,000
pH	(1)	(1)

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

(c) Drawing spent neat oils.

There shall be no discharge of process wastewater pollutants.

(d) Drawing spent emulsions.

SUBPART E—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	g/kkg (pound per billion pounds) of precious metals drawn with emulsions	
Cadmium	72	32
Copper	400	210
Cyanide	62	26
Silver	87	36
Oil and grease	4,300	2,600
TSS	8,700	4,200
pH	(1)	(1)

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

(e) Drawing spent soap solutions.

SUBPART E—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals drawn with soap solutions	
Cadmium	2.40	1.00
Copper	13.00	6.90
Cyanide	2.00	.80
Silver	2.80	1.20
Oil and grease	140.00	83.00
TSS	280.00	140.00
pH	(1)	(1)

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

(f) Extrusion press and solution heat treatment contact cooling water.

SUBPART E—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of extruded precious metals heat treated	
Cadmium	4,700	2,100
Copper	26,000	14,000
Cyanide	4,000	1,600
Silver	5,600	2,300
Oil and grease	270,000	160,000
TSS	560,000	270,000
pH	(1)	(1)

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

(g) Semi-continuous and continuous casting contact cooling water.

SUBPART E—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) cast by the semi-continuous or continuous method	
Cadmium	3,800	1,700
Copper	21,000	11,000
Cyanide	3,200	1,300
Silver	4,600	1,900
Oil and grease	220,000	130,000
TSS	460,000	220,000
pH	(1)	(1)

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

(h) Stationary casting contact cooling water.

SUBPART E—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) cast by the stationary method	
Cadmium	1.40	.60
Copper	7.90	4.20
Cyanide	1.20	.50
Silver	1.70	.70
Oil and grease	83.00	50.00
TSS	170.00	81.00
pH	(1)	(1)

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

(i) Direct chill casting contact cooling water.

SUBPART E—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals cast by the direct chill method	
Cadmium	280	120
Copper	1,600	820
Cyanide	240	98
Silver	340	140
Oil and grease	16,000	9,600
TSS	34,000	16,000
pH	(1)	(1)

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

(j) Shot casting contact cooling water.

SUBPART E—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals shot cast	
Cadmium	300	130
Copper	1,700	890
Cyanide	260	110
Silver	370	160
Oil and grease	18,000	11,000
TSS	37,000	17,000
pH	(1)	(1)

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

(k) Casting wet APC blowdown.

SUBPART E—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals cast	
Cadmium	20.0	8.8
Copper	110.0	59.0
Cyanide	17.0	7.0
Silver	24.0	10.0
Oil and grease	1,200.0	700.0
TSS	2,400.0	1,100.0
pH	(1)	(1)

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

(l) Metal powder production atomization wastewater.

SUBPART E—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals powder wet atomized	
Cadmium	2,300	1,000
Copper	13,000	6,700
Cyanide	1,900	800
Silver	2,700	1,100
Oil and grease	130,000	80,000

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
TSS	270,000	130,000
pH	(1)	(1)

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

(m) Metal powder production ball milling wastewater.

SUBPART E—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals powder wet ball milled	
Cadmium	7,400	3,300
Copper	41,000	22,000
Cyanide	6,300	2,600
Silver	8,900	3,700
Oil and grease	430,000	260,000
TSS	890,000	420,000
pH	(1)	(1)

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

(n) Pressure bonding contact cooling water.

SUBPART E—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals metal and base metal pressure bonded	
Cadmium	28	13
Copper	160	84
Cyanide	24	10
Silver	34	14
Oil and grease	1,700	1,000
TSS	3,400	1,600
pH	(1)	(1)

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

(o) Annealing solution heat treatment contact cooling water.

SUBPART E—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals annealed	
Cadmium	3,400	1,500
Copper	19,000	10,000
Cyanide	2,900	1,200
Silver	4,100	1,700
Oil and grease	200,000	120,000
TSS	410,000	200,000
pH	(1)	(1)

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

(p) Surface treatment spent baths.

SUBPART E—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals surface treated	
Cadmium	53	23
Copper	230	100
Cyanide	45	19
Silver	64	28
Oil and grease	3,100	1,300
TSS	6,400	3,000
pH	(1)	(1)

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

(q) Surface treatment rinsewater.

SUBPART E—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) precious of metals surface treated	
Cadmium	970	430
Copper	5,400	2,800
Cyanide	820	340
Silver	1,200	490
Oil and Grease	57,000	34,000
TSS	120,000	55,000
pH	(1)	(1)

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

(r) Alkaline cleaning spent baths.

SUBPART E—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals alkaline cleaned	
Cadmium	1.20	.60
Copper	7.00	3.70
Cyanide	1.10	.40
Silver	1.50	.60
Oil and Grease	73.00	44.00
TSS	150.00	72.00
pH	(1)	(1)

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

(s) Alkaline cleaning rinsewater.

SUBPART E—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals alkaline cleaned	
Cadmium	2,400	1,000
Copper	13,000	6,900
Cyanide	2,000	800
Silver	2,800	1,200
Oil and Grease	140,000	83,000
TSS	280,000	130,000
pH	(1)	(1)

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

(t) Pre-bonding cleaning wastewater.

SUBPART E—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metal and base metal cleaned prior to bonding	
Cadmium	1,200	510
Copper	6,500	3,400
Cyanide	930	410
Silver	1,400	580
Oil and Grease	68,000	41,000
TSS	140,000	66,000
pH	(1)	(1)

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

(u) Tumbling wastewater.

SUBPART E—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals tumbled	
Cadmium	330	170
Copper	2,200	1,200
Cyanide	330	140
Silver	470	200
Oil and Grease	23,000	14,000
TSS	47,000	22,000
pH	(1)	(1)

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

(v) Burnishing wastewater.

SUBPART E—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals burnished	
Cadmium	8,700	3,900
Copper	43,000	26,000
Cyanide	7,500	3,100
Silver	11,000	4,400
Oil and Grease	510,000	310,000
TSS	1,100,000	500,000
pH	(1)	(1)

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

(w) Sawing/Grinding Spent Emulsions.

SUBPART E—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals sawed or ground	
Cadmium	2.10	.90
Copper	11.00	6.10
Cyanide	1.80	.70
Silver	2.50	1.00
Oil and Grease	120.00	73.00
TSS	250.00	120.00
pH	(1)	(1)

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

(x) Degreasing spent solvents.

There shall be no discharge of process wastewater pollutants

§ 471.52 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).

Except as provided in 40 CFR 125.30–125.32, 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 available technology economically achievable (BAT):

(a) Rolling Spent Emulsions.

SUBPART E—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals rolled with emulsions	
Cadmium	7.2	2.9
Copper	46.0	22.0
Cyanide	7.2	2.9
Silver	10.0	4.3

(b) Rolling solution heat treatment contact cooling water.

SUBPART E—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of rolled precious metals heat treated	
Cadmium	140	56
Copper	900	430
Cyanide	140	56
Silver	200	84

(c) Drawing spent neat oils.

There shall be no discharge of process wastewater pollutants.

(d) Drawing spent emulsions.

SUBPART E—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals drawn with emulsions	
Cadmium	4.3	1.7
Copper	27.0	13.0
Cyanide	4.3	1.7
Silver	6.2	206

(e) Drawing spent soap solutions.

SUBPART E—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals drawn with soap solutions	
Cadmium	140	.60
Copper	8.90	4.20
Cyanide	140	.60
Silver	2.00	.80

(f) Extrusion press and solution heat treatment contact cooling.

SUBPART E—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of extruded precious metals heat treated	
Cadmium	270	110
Copper	1,800	840
Cyanide	270	110
Silver	400	160

(g) Semi-continuous and continuous casting contact cooling water.

SUBPART E—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals cast by the semi-continuous or continuous method	
Cadmium	220	90
Copper	1,400	680
Cyanide	220	90
Silver	320	130

(h) Stationary casting contact cooling water.

SUBPART E—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals cast by the stationary method	
Cadmium	.60	.30
Copper	5.30	2.50
Cyanide	.60	.30
Silver	1.20	.50

(i) Direct chill casting contact cooling water.

SUBPART E—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals cast by the direct chill method	
Cadmium	160	66
Copper	1,000	500
Cyanide	160	65
Silver	240	98

(j) Shot casting contact cooling water.

SUBPART E—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals shot cast	
Cadmium	18.0	7.1
Copper	110.0	54.0
Cyanide	18.0	7.1
Silver	26.0	11.0

(k) Casting wet APC blowdown.

SUBPART E—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals cast	
Cadmium	1.20	.50
Copper	7.50	3.60
Cyanide	1.20	.50
Silver	1.70	.70

(l) Metal powder production atomization wastewater.

SUBPART E—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals powder wet atomized	
Cadmium	1,300	530
Copper	8,500	4,100
Cyanide	1,300	530
Silver	1,900	800

(m) Metal power production ball milling wastewater.

SUBPART E—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals powder wet ball milled	
Cadmium	430	170
Copper	2,800	1,300
Cyanide	430	170

SUBPART E—BAT—Continued

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
Silver	630	260

(n) Pressure bonding contact cooling water.

SUBPART E—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals and base metal pressure bonded	
Cadmium	1.70	70
Copper	11.00	5.10
Cyanide	1.70	.70
Silver	2.40	1.00

(o) Annealing solution heat treatment contact cooling water.

SUBPART E—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals annealed	
Cadmium	200	80
Copper	1,300	610
Cyanide	200	80
Silver	290	120

(p) Surface treatment spent baths.

SUBPART E—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals surface treated	
Cadmium	31	12
Copper	200	95
Cyanide	31	12
Silver	45	19

(q) Surface treatment rinsewater.

SUBPART E—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals surface treated	
Cadmium	570	230
Copper	3,600	1,700
Cyanide	570	230
Silver	820	340

(r) Alkaline cleaning spent baths.

SUBPART E—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals alkaline cleaned	
Cadmium	.70	.30
Copper	4.70	2.20
Cyanide	.70	.30
Silver	1.10	.40

(s) Alkaline cleaning rinsewater.

SUBPART E—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals alkaline cleaned	
Cadmium	140	55
Copper	890	420
Cyanide	140	55
Silver	200	83

(t) Pre-bonding cleaning wastewater.

SUBPART E—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metal and base metal cleaned prior to bonding	
Cadmium	210	82
Copper	1,300	630
Cyanide	210	82
Silver	300	120

(u) Tumbling wastewater.

SUBPART E—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals tumbled	
Cadmium	93	35
Copper	570	270
Cyanide	93	35
Silver	130	53

(v) Burnishing wastewater.

SUBPART E—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals burnished	
Cadmium	510	210
Copper	3,300	1,600
Cyanide	510	210
Silver	750	310

(w) Sawing/grinding spent emulsions.

SUBPART E—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals sawed or ground	
Cadmium	1.20	.50
Copper	7.70	3.70
Cyanide	1.20	.50
Silver	1.80	.70

(x) Degreasing spent solvents.

There shall be no discharge of process wastewater pollutants.

§ 471.53 New source performance standards (NSPS).

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

(a) Rolling spent emulsions.

SUBPART E—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals rolled with emulsions	
Cadmium	7.2	2.9
Copper	46.2	22.0
Cyanide	7.2	2.9
Silver	10.0	4.3
Oil and grease	360.0	360.0
TSS	540.0	430.0
pH	(1)	(1)

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

(b) Rolling solution heat treatment contact cooling water.

SUBPART E—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of rolled precious metals heat treated	
Cadmium	140	55
Copper	890	430
Cyanide	140	55
Silver	200	84
Oil and grease	7,000	7,000
TSS	11,000	8,400
pH	(1)	(1)

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

(c) Drawing spent neat oils.

There shall be no discharge of process wastewater pollutants.

(d) Drawing spent emulsions.

SUBPART E—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals drawn with emulsions	
Cadmium	4.3	1.7
Copper	27.0	13.0
Cyanide	4.3	1.7
Silver	6.2	2.6
Oil and grease	210.0	210.0
TSS	320.0	260.0
pH	(1)	(1)

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

(e) Drawing spent soap solutions.

SUBPART E—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals drawn with soap solutions	
Cadmium	1.40	.60
Copper	8.90	4.20
Cyanide	1.40	.60
Silver	2.00	.80
Oil and grease	69.00	69.00
TSS	100.00	83.00
pH	(1)	(1)

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

(f) Extrusion press and solution heat treatment contact cooling.

SUBPART E—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of extruded precious metals heat treated	
Cadmium	270	110
Copper	1,800	840
Cyanide	270	110
Silver	400	160
Oil and grease	14,000	14,000
TSS	21,000	16,000
pH	(1)	(1)

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

(g) Semi-continuous and continuous casting contact cooling water.

SUBPART E—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals cast by the semi-continuous or continuous method	
Cadmium	220	90
Copper	1,400	680
Cyanide	220	90
Silver	320	130
Oil and grease	11,000	11,000
TSS	17,000	13,000
pH	(1)	(1)

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

(h) Stationary casting contact cooling water.

SUBPART E—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals cast by the stationary method	
Cadmium	.80	.30
Copper	5.30	2.50
Cyanide	.80	.30
Silver	1.20	.50
Oil and grease	42.00	42.00
TSS	63.00	50.00
pH	(1)	(1)

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

(i) Direct chill casting contact cooling water.

SUBPART E—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals cast by the direct chill method	
Cadmium	160	65
Copper	1,000	500
Cyanide	160	65
Silver	240	98
Oil and grease	8,200	8,200
TSS	12,000	9,800
pH	(1)	(1)

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

(j) Shot casting contact cooling water.

SUBPART E—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals shot cast	
Cadmium	18.0	7.1
Copper	110.0	54.0
Cyanide	18.0	7.1
Silver	26.0	11.0
Oil and grease	890.0	890.0
TSS	1,300.0	1,100.0
pH	(1)	(1)

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

(k) Casting wet APC blowdown.

SUBPART E—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals cast	
Cadmium	1.20	.50
Copper	7.50	3.60
Cyanide	1.20	.50
Silver	1.70	.70
Oil and grease	59.00	59.00
TSS	88.00	70.00
pH	(1)	(1)

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

(l) Metal powder production atomization wastewater.

SUBPART E—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals powder wet atomized	
Cadmium	1,300	530
Copper	8,500	4,100
Cyanide	1,300	530
Silver	1,900	800
Oil and grease	67,000	67,000
TSS	100,000	80,000
pH	(1)	(1)

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

(m) Metal powder production ball milling wastewater.

SUBPART E—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals powder wet ball milled	
Cadmium	430	170
Copper	2,800	1,300
Cyanide	430	170
Silver	630	260
Oil and grease	22,000	22,000
TSS	33,000	26,000
pH	(1)	(1)

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

(n) Pressure bonding contact cooling water.

SUBPART E—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals drawn with soap solutions	
Cadmium	1.70	.70
Copper	11.00	5.10
Cyanide	1.70	.70
Silver	2.40	1.00
Oil and grease	84.00	84.00
TSS	130.00	100.00
pH	(1)	(1)

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

(o) Annealing solution heat treatment contact cooling water.

SUBPART E—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals annealed	
Cadmium	200	80
Copper	1,300	610
Cyanide	200	80
Silver	290	120
Oil and grease	10,000	10,000

SUBPART E—NSPS—Continued

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
TSS	15,000	12,000
pH	(1)	(1)

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

(p) Surface treatment spent baths.

SUBPART E—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals surface treated	
Cadmium	31	12
Copper	200	95
Cyanide	31	12
Silver	45	19
Oil and grease	1,600	1,600
TSS	2,300	1,900
pH	(1)	(1)

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

(q) Surface treatment rinsewater.

SUBPART E—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals surface treated	
Cadmium	570	230
Copper	3,600	1,700
Cyanide	570	230
Silver	820	340
Oil and grease	28,000	28,000
TSS	43,000	34,000
pH	(1)	(1)

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

(r) Alkaline cleaning spent baths.

SUBPART E—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals alkaline cleaned	
Cadmium	.70	.30
Copper	4.70	2.20
Cyanide	.70	.30
Silver	1.10	.40
Oil and grease	37.00	37.00
TSS	55.00	44.00
pH	(1)	(1)

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

(s) Alkaline cleaning rinsewater.

SUBPART E—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals alkaline cleaned	
Cadmium	140	55
Copper	890	420

SUBPART E—NSPS—Continued

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
Cyanide	140	55
Silver	200	83
Oil and grease	6,900	6,900
TSS	10,000	8,300
pH	(1)	(1)

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

(t) Pre-bonding cleaning wastewater.

SUBPART E—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metal and base metal cleaned prior to bonding	
Cadmium	210	82
Copper	1,300	600
Cyanide	210	82
Silver	300	120
Oil and grease	10,000	10,000
TSS	15,000	12,000
pH	(1)	(1)

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

(u) Tumbling wastewater.

SUBPART E—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals tumbled	
Cadmium	93	35
Copper	570	270
Cyanide	93	35
Silver	130	53
Oil and grease	4,400	4,400
TSS	6,600	5,300
pH	(1)	(1)

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

(v) Burnishing wastewater.

SUBPART E—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals burnished	
Cadmium	510	210
Copper	3,300	1,600
Cyanide	510	210
Silver	750	310
Oil and grease	28,000	28,000
TSS	39,000	31,000
pH	(1)	(1)

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

(w) Sawing/grinding spent emulsions.

SUBPART E—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of precious metals sawed or ground	
Cadmium	1.20	.50
Copper	7.70	3.70
Cyanide	1.20	.50
Silver	1.80	.70
Oil and grease	61.00	61.00
TSS	91.00	73.00
pH	(1)	(1)

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

(x) Degreasing spent solvents.

There shall be no discharge of process wastewater pollutants.

§ 471.54 Pretreatment standards for existing sources (PSES).

Except as provided in 40 CFR 403.7 and 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and by [36 months after promulgation] achieve the following pretreatment standards for existing sources (PSES): The limitations for cadmium, copper, silver, and cyanide are the same as specified in § 471.52.

§ 471.55 Pretreatment standards for new sources (PSNS).

Except as provided in 40 CFR 403.7, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources (PSNS): The limitations for cadmium, copper, silver, and cyanide are the same as specified in § 471.52.

§ 471.56 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT).

Except as provided in 40 CFR 125.30–125.32 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 conventional pollutant control technology (BCT): The limitations for TSS, oil and grease, and pH are the same as specified in §471.51.

Subpart F—Refractory Metals Forming Subcategory

§ 471.60 Applicability; description of the refractory metals forming subcategory.

This subpart applies to discharges of pollutants to waters of the United States, and introductions of pollutants into publicly owned treatment works

from the process operations of the refractory metals forming subcategory.

§ 471.61 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

Except as provided in 40 CFR 125.30–125.32, any existing point source subject to this subpart must achieve the following effluent limitations for the process operations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT):

(a) Rolling spent neat oils.

There shall be no discharge of process wastewater pollutants.

(b) Rolling spent emulsions.

SUBPART F—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals rolled with emulsions	
Copper	2,300	1,200
Nickel	2,300	1,500
Columbium	2,500	1,100
Fluoride	71,000	32,000
Molybdenum	2,500	1,100
Tantalum	2,500	1,100
Tungsten	2,500	1,100
Vanadium	2,500	1,100
Oil and grease	24,000	14,000
TSS	49,000	23,000
pH	(1)	(1)

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

(c) Drawing spent lubricants.

There shall be no discharge of process wastewater pollutants.

(d) Extrusion press and solution heat treatment contact cooling water.

SUBPART F—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of extruded refractory metals heat treated	
Copper	6,600	3,500
Nickel	6,600	4,400
Columbium	7,100	3,100
Fluoride	210,000	91,000
Molybdenum	7,100	3,100
Tantalum	7,100	3,100
Tungsten	7,100	3,100
Vanadium	7,100	3,100
Oil and grease	69,000	42,000
TSS	140,000	67,000
pH	(1)	(1)

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

(e) Extrusion press hydraulic fluid leakage.

SUBPART F—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals	
Copper	2,300	1,200
Nickel	2,300	1,500
Columbium	2,300	1,100
Fluoride	71,000	31,000
Molybdenum	2,400	1,100
Tantalum	2,400	1,100
Tungsten	2,400	1,100
Vanadium	2,400	1,100
Oil and grease	24,000	14,000
TSS	49,000	23,000
pH	(1)	(1)

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

(f) Forging spent lubricants.

There shall be no discharge of process wastewater pollutants.

(g) Forging solution heat treatment contact cooling water.

SUBPART F—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of forged refractory metals heat treated	
Copper	11,000	5,800
Nickel	11,000	7,400
Columbium	12,000	5,300
Fluoride	340,000	150,000
Molybdenum	12,000	5,300
Tantalum	12,000	5,300
Tungsten	12,000	5,300
Vanadium	12,000	5,300
Oil and grease	120,000	69,000
TSS	240,000	110,000
pH	(1)	(1)

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

(h) Extrusion and forging equipment cleaning wastewater.

SUBPART F—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals extruded or forged	
Copper	790	420
Nickel	800	530
Columbium	850	380
Fluoride	25,000	11,000
Molybdenum	850	380
Tantalum	850	380
Tungsten	850	380
Vanadium	850	380
Oil and grease	8,300	5,000
TSS	17,000	8,100
pH	(1)	(1)

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

(i) Metal power production wastewater.

SUBPART F—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals power produced	
Copper	3,100	1,600
Nickel	3,100	2,100
Columbium	3,400	1,500
Fluoride	98,000	43,000
Molybdenum	3,400	1,500
Tantalum	3,400	1,500
Tungsten	3,400	1,500
Vanadium	3,400	1,500
Oil and grease	33,000	20,000
TSS	67,000	32,000
pH	(1)	(1)

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

(j) Metal powder production wet APC blowdown.

There shall be no discharge of process wastewater pollutants.

(k) Metal powder pressing spent lubricants.

There shall be no discharge of process wastewater pollutants.

(l) Casting contact cooling water.

There shall be no discharge of process wastewater pollutants.

(m) Post-casting billet washwater.

SUBPART F—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of cast refractory metals billet washed	
Copper	57	30
Nickel	57	38
Columbium	61	27
Fluoride	1,800	790
Molybdenum	61	27
Tantalum	61	27
Tungsten	61	27
Vanadium	61	27
Oil and grease	600	360
TSS	1,200	580
pH	(1)	(1)

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

(n) Surface treatment spent baths.

SUBPART F—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals surface treated	
Copper	24	13
Nickel	24	16
Columbium	26	12
Fluoride	760	340
Molybdenum	26	12
Tantalum	26	12
Tungsten	26	12
Vanadium	26	12
Oil and Grease	250	150
TSS	520	250
pH	(1)	(1)

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

(o) Surface treatment rinsewater.

SUBPART F—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals surface treated	
Copper	230,000	120,000
Nickel	230,000	150,000
Columbium	250,000	110,000
Fluoride	7,200,000	3,200,000
Molybdenum	250,000	110,000
Tantalum	250,000	110,000
Tungsten	250,000	110,000
Vanadium	250,000	110,000
Oil and Grease	2,400,000	1,500,000
TSS	5,000,000	2,400,000
pH	(1)	(1)

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

(p) Surface treatment wet APC blowdown.

SUBPART F—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals surface treated	
Copper	22,000	12,000
Nickel	23,000	15,000
Columbium	24,000	11,000
Fluoride	700,000	310,000
Molybdenum	24,000	11,000
Tantalum	24,000	11,000
Tungsten	24,000	11,000
Vanadium	24,000	11,000
Oil and Grease	240,000	140,000
TSS	480,000	230,000
pH	(1)	(1)

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

(q) Surface coating wet APC blowdown.

SUBPART F—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals surface coated	
Copper	2,100	1,100
Nickel	2,100	1,400
Columbium	2,200	980
Fluoride	64,000	29,000
Molybdenum	2,200	980
Tantalum	2,200	980
Tungsten	2,200	980
Vanadium	2,200	980
Oil and Grease	22,000	13,000
TSS	44,000	21,000
pH	(1)	(1)

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

(r) Alkaline cleaning spent baths.

SUBPART F—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals alkaline cleaned	
Copper	59	31
Nickel	59	33
Columbium	63	28
Fluoride	1,800	810
Molybdenum	63	28
Tantalum	63	28
Tungsten	63	28
Vanadium	63	28
Oil and Grease	610	370
TSS	1,200	600
pH	(1)	(1)

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

(s) Alkaline cleaning rinsewater.

SUBPART F—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals alkaline cleaned	
Copper	270,000	140,000
Nickel	270,000	160,000
Columbium	290,000	130,000
Fluoride	8,300,000	3,700,000
Molybdenum	290,000	130,000
Tantalum	290,000	130,000
Tungsten	290,000	130,000
Vanadium	290,000	130,000
Oil and Grease	2,800,000	1,700,000
TSS	5,700,000	2,700,000
pH	(1)	(1)

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

(t) Molten salt cleaning rinsewater.

SUBPART F—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals cleaned with molten salt	
Copper	170,000	80,000
Nickel	170,000	110,000
Columbium	180,000	82,000
Fluoride	5,400,000	2,400,000
Molybdenum	180,000	82,000
Tantalum	180,000	82,000
Tungsten	180,000	82,000
Vanadium	180,000	82,000
Oil and grease	1,800,000	1,100,000
TSS	3,700,000	1,800,000
pH	(1)	(1)

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

(u) Tumbling/burnishing wastewater.

SUBPART F—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals tumbled or burnished	
Copper	48,000	22,000
Nickel	47,000	23,000

SUBPART F—BPT—Continued

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
Columbium	45,000	20,000
Fluoride	1,200,000	550,000
Molybdenum	45,000	20,000
Tantalum	45,000	20,000
Tungsten	45,000	20,000
Vanadium	45,000	20,000
Oil and grease	440,000	270,000
TSS	810,000	430,000
pH	(1)	(1)

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

(v) Sawing/grinding spent neat oils.

There shall be no discharge of process wastewater pollutants.

(w) Sawing/grinding spent emulsions.

SUBPART F—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals sawed or ground with emulsions	
Copper	410	220
Nickel	420	220
Columbium	440	200
Fluoride	13,000	5,700
Molybdenum	440	200
Tantalum	440	200
Tungsten	440	200
Vanadium	440	200
Oil and grease	4,300	2,600
TSS	8,900	4,200
pH	(1)	(1)

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

(x) Sawing/grinding contact lubricant-coolant water.

SUBPART F—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals sawed or ground with contact lubricant-coolant water	
Copper	1,500	810
Nickel	1,600	1,000
Columbium	1,700	740
Fluoride	49,000	21,000
Molybdenum	1,700	740
Tantalum	1,700	740
Tungsten	1,700	740
Vanadium	1,700	740
Oil and grease	16,000	9,700
TSS	33,000	16,000
pH	(1)	(1)

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

(y) Sawing/grinding wet APC blowdown.

SUBPART F—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals sawed or ground	
Copper	2,100	1,100

SUBPART F—BPT—Continued

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
Nickel	2,100	1,400
Columbium	2,200	980
Fluoride	64,000	29,000
Molybdenum	2,200	980
Tantalum	2,200	980
Tungsten	2,200	980
Vanadium	2,200	980
Oil and grease	22,000	13,000
TSS	44,000	21,000
pH	(1)	(1)

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

(z) Post sawing/grinding rinsewater.

SUBPART F—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of sawed or ground refractory metals rinsed	
Copper	970	510
Nickel	980	650
Columbium	1,100	470
Fluoride	31,000	14,000
Molybdenum	1,100	470
Tantalum	1,100	470
Tungsten	1,100	470
Vanadium	1,100	470
Oil and grease	10,000	6,200
TSS	21,000	10,000
pH	(1)	(1)

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

(aa) Product testing wastewater.

SUBPART F—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals product tested	
Copper	150	78
Nickel	150	99
Columbium	160	71
Fluoride	4,600	2,000
Molybdenum	160	71
Tantalum	160	71
Tungsten	160	71
Vanadium	160	71
Oil and grease	1,600	930
TSS	3,200	1,500
pH	(1)	(1)

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

(bb) Degreasing spent solvents.

There shall be no discharge of process wastewater pollutants.

§ 471.62 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).

Except as provided in 40 CFR 125.30–125.32, 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 available technology economically achievable (BAT):

(a) Rolling spent neat oils.

There shall be no discharge of process wastewater pollutants.

(b) Rolling spent emulsions.

SUBPART F—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals rolled with emulsions	
Copper	1,500	730
Nickel	660	440
Columbium	830	360
Fluoride	71,000	32,000
Molybdenum	830	360
Tantalum	830	360
Tungsten	830	360
Vanadium	830	360

(c) Drawing spent lubricants.

There shall be no discharge of process wastewater pollutants.

(d) Extrusion press and solution heat treatment contact cooling water.

SUBPART F—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of extruded refractory metals heat treated	
Copper	440	210
Nickel	190	130
Columbium	240	100
Fluoride	21,000	9,100
Molybdenum	240	100
Tantalum	240	100
Tungsten	240	100
Vanadium	240	100

(e) Extrusion press hydraulic fluid leakage.

SUBPART F—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals product tested	
Copper	1,500	730
Nickel	650	440
Columbium	820	360
Fluoride	71,000	31,000
Molybdenum	820	360
Tantalum	820	360
Tungsten	820	360
Vanadium	820	360

(f) Forging spent lubricants.

There shall be no discharge of process wastewater pollutants.

(g) Forging solution heat treatment contact cooling water.

SUBPART F—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of forged refractory metals heat treated	
Copper	740	350
Nickel	320	210
Columbium	400	170
Fluoride	34,000	15,000
Molybdenum	400	170
Tantalum	400	170
Tungsten	400	170
Vanadium	400	170

(h) Extrusion and forging equipment cleaning wastewater.

SUBPART F—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals extruded or forged	
Copper	53	25
Nickel	23	16
Columbium	29	13
Fluoride	2,500	1,100
Molybdenum	29	13
Tantalum	29	13
Tungsten	29	13
Vanadium	29	13

(i) Metal powder production wastewater.

SUBPART F—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals powder produced	
Copper	2,100	1,000
Nickel	900	610
Columbium	1,100	490
Fluoride	98,000	43,000
Molybdenum	1,100	490
Tantalum	1,100	490
Tungsten	1,100	490
Vanadium	1,100	490

(j) Metal powder production wet APC blowdown.

There shall be no discharge of process wastewater pollutants.

(k) Metal powder pressing spent lubricants.

There shall be no discharge of process wastewater pollutants.

(l) Casting contact cooling water.

There shall be no discharge of process wastewater pollutants.

(m) Post-casting billet washwater.

SUBPART F—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals billet washed	
Copper	38.0	18.0
Nickel	16.0	11.0
Columbium	21.0	8.9
Fluoride	1,800.0	790.0
Molybdenum	21.0	8.9
Tantalum	21.0	8.9
Tungsten	21.0	8.9
Vanadium	21.0	8.9

(n) Surface treatment spent baths.

SUBPART F—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals surface treated	
Copper	16.0	7.7
Nickel	7.0	4.7
Columbium	8.8	3.8
Fluoride	760.0	340.0
Molybdenum	8.8	3.8
Tantalum	8.8	3.8
Tungsten	8.8	3.8
Vanadium	8.8	3.8

(o) Pickling rinsewater.

SUBPART F—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals surface treated	
Copper	15,000	7,400
Nickel	6,700	4,500
Columbium	8,300	3,600
Fluoride	720,000	320,000
Molybdenum	8,300	3,600
Tantalum	8,300	3,600
Tungsten	8,300	3,600
Vanadium	8,300	3,600

(p) Surface treatment wet APC blowdown.

SUBPART F—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals surface treated	
Copper	15,000	7,200
Nickel	6,500	4,400
Columbium	8,100	3,500
Fluoride	700,000	310,000
Molybdenum	8,100	3,500
Tantalum	8,100	3,500
Tungsten	8,100	3,500
Vanadium	8,100	3,500

(q) Surface coating wet APC blowdown.

SUBPART F—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals surface coated	
Copper	1,400	600
Nickel	580	400
Columbium	750	320
Fluoride	64,000	28,000
Molybdenum	750	320
Tantalum	750	320
Tungsten	750	320
Vanadium	750	320

(r) Alkaline cleaning spent baths.

SUBPART F—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals alkaline cleaned	
Copper	39.0	19.0
Nickel	17.0	11.0
Columbium	21.0	9.2
Fluoride	1,800.0	810.0
Molybdenum	21.0	9.2
Tantalum	21.0	9.2
Tungsten	21.0	9.2
Vanadium	21.0	9.2

(s) Alkaline cleaning rinsewater.

SUBPART F—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals alkaline cleaned	
Copper	1,900	850
Nickel	770	520
Columbium	970	420
Fluoride	83,000	37,000
Molybdenum	970	420
Tantalum	970	420
Tungsten	970	420
Vanadium	970	420

(t) Molten salt cleaning rinsewater.

SUBPART F—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals cleaned with molten salt	
Copper	120,000	55,000
Nickel	50,000	33,000
Columbium	62,000	27,000
Fluoride	5,400,000	2,400,000
Molybdenum	62,000	27,000
Tantalum	62,000	27,000
Tungsten	62,000	27,000
Vanadium	62,000	27,000

(u) Tumbling/burnishing wastewater.

SUBPART F—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals tumbled or burnished	
Copper	2,800	1,300
Nickel	1,200	820
Columbium	1,500	660
Fluoride	130,000	58,000
Molybdenum	1,500	660
Tantalum	1,500	660
Tungsten	1,500	660
Vanadium	1,500	660

(v) Sawing/grinding spent neat oils.

There shall be no discharge of process wastewater pollutants.

(w) Sawing/grinding spent emulsions.

SUBPART F—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals sawed or ground with emulsions	
Copper	220	130
Nickel	120	80
Columbium	150	65
Fluoride	13,000	5,700
Molybdenum	150	65
Tantalum	150	65
Tungsten	150	65
Vanadium	150	65

(x) Sawing/grinding contact lubricant-coolant water.

SUBPART F—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals sawed or ground with contact lubricant-coolant water	
Copper	1,000	500
Nickel	450	300
Columbium	560	240
Fluoride	43,000	21,000
Molybdenum	560	240
Tantalum	560	240
Tungsten	560	240
Vanadium	560	240

(y) Sawing/grinding wet APC blowdown.

SUBPART F—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals sawed or ground	
Copper	140	66
Nickel	53	40
Columbium	75	32
Fluoride	6,400	2,900

SUBPART F—BAT—Continued

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
Molybdenum	75	32
Tantalum	75	32
Tungsten	75	32
Vanadium	75	32

(z) Post sawing/grinding rinsewater.

SUBPART F—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of sawed or ground refractory metals rinsed	
Copper	66	31
Nickel	28	19
Columbium	35	15
Fluoride	3,100	1,400
Molybdenum	35	15
Tantalum	35	15
Tungsten	35	15
Vanadium	35	15

(aa) Product testing wastewater.

SUBPART F—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals product tested	
Copper	10.0	4.7
Nickel	4.3	2.9
Columbium	5.4	2.3
Fluoride	460.0	200.0
Molybdenum	5.4	2.3
Tantalum	5.4	2.3
Tungsten	5.4	2.3
Vanadium	5.4	2.3

(bb) Degreasing spent solvents.

There shall be no discharge of process wastewater pollutants.

§ 471.63 New source performance standards (NSPS).

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

(a) Rolling spent neat oils.

There shall be no discharge of process wastewater pollutants.

(b) Rolling spent emulsions.

SUBPART F—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals rolled with emulsions	
Copper	1,500	730
Nickel	660	440
Columbium	830	360
Fluoride	71,000	32,000

SUBPART F—NSPS—Continued

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
Molybdenum	830	360
Tantalum	830	360
Tungsten	830	360
Vanadium	830	360
Oil and Grease	12,000	12,000
TSS	18,000	14,000
pH	(1)	(1)

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

(c) Drawing spent lubricants.

There shall be no discharge of process wastewater pollutants.

(d) Extrusion press and solution heat treatment contact cooling water.

SUBPART F—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of extruded refractory metals heat treated	
Copper	440	210
Nickel	190	130
Columbium	240	100
Fluoride	21,000	9,100
Molybdenum	240	100
Tantalum	240	100
Tungsten	240	100
Vanadium	240	100
Oil and Grease	3,500	3,500
TSS	5,200	4,200
pH	(1)	(1)

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

(e) Extrusion press hydraulic fluid leakage.

SUBPART F—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals extrudeds	
Copper	1,500	730
Nickel	650	440
Columbium	820	360
Fluoride	71,000	31,000
Molybdenum	820	360
Tantalum	820	360
Tungsten	820	360
Vanadium	820	360
Oil and Grease	12,000	12,000
TSS	18,000	14,000
pH	(1)	(1)

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

(f) Forging spent lubricants.

There shall be no discharge of process wastewater pollutants.

(g) Forging solution heat treatment contact cooling water.

SUBPART F—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of forged refractory metals heat treated	
Copper	740	350
Nickel	320	210
Columbium	400	170
Fluoride	34,000	15,000
Molybdenum	400	170
Tantalum	400	170
Tungsten	400	170
Vanadium	400	170
Oil and grease	5,600	5,600
TSS	8,700	6,900
pH	(1)	(1)

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

(h) Extrusion and forging equipment cleaning wastewater.

SUBPART F—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals extruded or forged	
Copper	53	25
Nickel	23	16
Columbium	29	13
Fluoride	2,500	1,100
Molybdenum	29	13
Tantalum	29	13
Tungsten	29	13
Vanadium	29	13
Oil and grease	420	420
TSS	630	500
pH	(1)	(1)

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

(i) Metal powder production wastewater.

SUBPART F—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals powder produced	
Copper	2,100	1,000
Nickel	900	610
Columbium	1,100	490
Fluoride	98,000	43,000
Molybdenum	1,100	490
Tantalum	1,100	490
Tungsten	1,100	490
Vanadium	1,100	490
Oil and grease	16,000	16,000
TSS	25,000	20,000
pH	(1)	(1)

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

(j) Metal powder production wet APC blowdown.

There shall be no discharge of process wastewater pollutants.

(k) Metal powder pressing spent lubricants.

There shall be no discharge or process wastewater pollutants.

(l) Casting contact cooling water.

There shall be no discharge of process wastewater pollutants.

(m) Post-casting billet washwater.

SUBPART F—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of cast refractory metals billet washed	
Copper	38.0	18.0
Nickel	16.0	11.0
Columbium	21.0	8.9
Fluoride	1,800.0	790.0
Molybdenum	21.0	8.9
Tantalum	21.8	78.9
Tungsten	21.0	8.9
Vanadium	21.0	8.9
Oil and grease	300.0	300.0
TSS	450.0	360.0
pH	(1)	(1)

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

(n) Surface treatment spent baths.

SUBPART F—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals surface treated	
Copper	16.0	7.7
Nickel	7.0	4.7
Columbium	8.8	3.8
Fluoride	760.0	340.0
Molybdenum	8.8	3.8
Tantalum	8.8	3.8
Tungsten	8.8	3.8
Vanadium	8.8	3.8
Oil & Grease	130.0	130.0
TSS	190.0	150.0
pH	(1)	(1)

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

(o) Surface treatment rinsewater.

SUBPART F—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals surface treated	
Copper	15,000	7,400
Nickel	6,700	4,500
Columbium	8,300	3,600
Fluoride	720,000	320,000
Molybdenum	8,300	3,600
Tantalum	8,300	3,600
Tungsten	8,300	3,600
Vanadium	8,300	3,600
Oil & Grease	120,000	120,000
TSS	180,000	150,000
pH	(1)	(1)

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

(p) Surface treatment wet APC blowdown.

SUBPART F—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals surface treated	
Copper	15,000	7,200
Nickel	6,500	4,400
Columbium	8,100	3,500
Fluoride	700,000	310,000
Molybdenum	8,100	3,500
Tantalum	8,100	3,500
Tungsten	8,100	3,500
Vanadium	8,100	3,500
Oil & Grease	120,000	120,000
TSS	180,000	140,000
pH	(1)	(1)

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

(q) Surface coating wet APC blowdown.

SUBPART F—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals surface coated	
Copper	1,400	690
Nickel	590	400
Columbium	750	320
Fluoride	64,000	29,000
Molybdenum	750	320
Tantalum	750	320
Tungsten	750	320
Vanadium	750	320
Oil & Grease	11,000	11,000
TSS	16,000	13,000
pH	(1)	(1)

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

(r) Alkaline cleaning spent baths.

SUBPART F—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals alkaline cleaned	
Copper	33.0	19.0
Nickel	17.0	11.0
Columbium	21.0	9.2
Fluoride	1,600.0	810.0
Molybdenum	21.0	9.2
Tantalum	21.0	9.2
Tungsten	21.0	9.2
Vanadium	21.0	9.2
Oil & Grease	310.0	310.0
TSS	460.0	370.0
pH	(1)	(1)

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

(s) Alkaline cleaning rinsewater.

SUBPART F—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals alkaline cleaned	
Copper	1,600	850
Nickel	770	520
Columbium	970	420

SUBPART F—NSPS—Continued

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
Fluoride	83,000	37,000
Molybdenum	970	420
Tantalum	970	420
Tungsten	970	420
Vanadium	970	420
Oil & Grease	14,000	14,000
TSS	21,000	17,000
pH	(1)	(1)

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

(t) Molten salt cleaning rinsewater.

SUBPART F—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals cleaned with molten salt	
Copper	120,000	55,000
Nickel	50,000	33,000
Columbium	62,000	27,000
Fluoride	5,400,000	2,400,000
Molybdenum	62,000	27,000
Tantalum	62,000	27,000
Tungsten	62,000	27,000
Vanadium	62,000	27,000
Oil and grease	9,000	900,000
TSS	1,400,000	1,100,000
pH	(1)	(1)

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

(u) Tumbling/burnishing wastewater.

SUBPART F—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals tumbled or burnished	
Copper	2,800	1,300
Nickel	1,200	820
Columbium	1,500	660
Fluoride	130,000	58,000
Molybdenum	1,500	660
Tantalum	1,500	660
Tungsten	1,500	660
Vanadium	1,500	660
Oil and grease	22,000	22,000
TSS	33,000	27,000
pH	(1)	(1)

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

(v) Sawing/grinding spent neat oils.

There shall be no discharge of process wastewater pollutants.

(w) Sawing/grinding spent emulsions.

SUBPART F—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals sawed or ground with emulsions	
Copper	220	130
Nickel	120	80
Columbium	150	65

SUBPART F—NSPS—Continued

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
Fluoride	13,000	5,700
Molybdenum	150	65
Tantalum	150	65
Tungsten	150	65
Vanadium	150	65
Oil and grease	2,200	2,200
TSS	3,300	2,600
pH	(1)	(1)

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

(x) Sawing/grinding contact lubricant-coolant water.

SUBPART F—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals sawed or ground with contact lubricant/coolant water	
Copper	1,000	500
Nickle	450	300
Columbian	560	240
Fluoride	48,000	21,000
Molybdenum	560	240
Tantalum	560	240
Tungsten	560	240
Vanadium	560	240
Oil and grease	8,100	8,100
TSS	12,000	9,700
pH	(1)	(1)

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

(y) Sawing/grinding wet APC blowdown.

SUBPART F—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of refractory metals sawed or ground	
Copper	140	66
Nickle	59	40
Columbian	75	32
Fluoride	6,400	2,900
Molybdenum	75	32
Tantalum	75	32
Tungsten	75	32
Vanadium	75	32
Oil and grease	1,100	1,100
TSS	1,600	1,300
pH	(1)	(1)

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

(z) Post sawing/grinding rinsewater.

SUBPART F—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of forged refractory metals heat treated	
Copper	66	31
Nickel	28	19

SUBPART F—NSPS—Continued

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
Columbium	35	15
Fluoride	3,100	1,400
Molybdenum	35	15
Tantalum	35	15
Tungsten	35	15
Vanadium	35	15
Oil and Grease	510	510
TSS	770	620
pH	(1)	(1)

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

(aa) Product testing wastewater.

SUBPART F—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of forged refractory metals heat treated	
Copper	10.0	4.7
Nickel	4.3	2.9
Columbium	5.4	2.3
Fluoride	460.0	200.0
Molybdenum	5.4	2.3
Tantalum	5.4	2.3
Tungsten	5.4	2.3
Vanadium	5.4	2.3
Oil and Grease	78.0	78.0
TSS	120.0	83.0
pH	(1)	(1)

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

(bb) Degreasing spent solvents.

There shall be no discharge of process wastewater pollutants.

§ 471.64 Pretreatment standards for existing sources (PSES).

Except as provided in 40 CFR 403.7 and 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and by [36 months after promulgation] achieve the following pretreatment standards for existing sources (PSES): The limitations for copper, nickel, columbium, fluoride, molybdenum, tantalum, tungsten, and vanadium are the same as specified in § 471.62.

§ 471.65 Pretreatment standards for new sources (PSNS).

Except as provided in 40 CFR 403.7, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources (PSNS): The limitations for copper, nickel, columbium, fluoride, molybdenum, tantalum, tungsten, and vanadium are the same as specified in § 471.62.

§ 471.66 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT).

Except as provided in 40 CFR 125.30–125.32 any existing source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT): The limitations for TSS, oil and grease, and pH are the same as specified in § 471.61.

Subpart G—Titanium Forming Subcategory

§ 471.70 Applicability; description of the titanium forming subcategory.

This subpart applies to discharges of pollutants to waters of the United States, and introductions of pollutants into publicly owned treatment works from the process operations of the titanium forming subcategory.

§ 471.71 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

Except as provided in 40 CFR 125.30–125.32, any existing point source subject to this subpart must achieve the following effluent limitations for the process operations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT):

(a) Cold rolling spent lubricants.

SUBPART G—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of titanium cold rolled	
Cyanide	970	400
Lead	1,400	670
Zinc	4,900	2,000
Ammonia	450,000	200,000
Fluoride	200,000	88,000
Titanium	6,800	3,000
Oil and grease	67,050	40,000
TSS	140,000	65,000
pH	(1)	(1)

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

(b) Hot rolling contact lubricant-coolant water.

SUBPART G—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of titanium hot rolled with contact lubricant-coolant water	
Cyanide	1,200	520
Lead	1,800	860
Zinc	6,300	2,600
Ammonia	570,000	250,000
Fluoride	260,000	110,000
Titanium	8,800	3,900
Oil and grease	86,000	52,000
TSS	180,000	84,000
pH	(1)	(1)

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

(c) Extrusion spent lubricants.

SUBPART G—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of titanium extruded	
Cyanide	79	33
Lead	120	55
Zinc	400	170
Ammonia	37,000	16,000
Fluoride	16,000	7,200
Titanium	560	250
Oil and grease	5,500	3,300
TSS	11,000	5,300
pH	(1)	(1)

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

(d) Forging spent lubricants.

There shall be no discharge of process wastewater pollutants.

(e) Forging die contact cooling water.

SUBPART G—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of titanium forged	
Cyanide	870	360
Lead	1,300	600
Zinc	4,400	1,800
Ammonia	400,000	180,000
Fluoride	180,000	79,000
Titanium	6,200	2,700
Oil and grease	60,000	36,000
TSS	120,000	59,000
pH	(1)	(1)

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

(f) Forging wet APC blowdown.

SUBPART G—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of titanium forged	
Cyanide	580	240
Lead	850	400
Zinc	2,900	1,200
Ammonia	270,000	120,000
Fluoride	120,000	53,000
Titanium	4,100	1,800

SUBPART G—BPT—Continued

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
Oil and grease	40,000	24,000
TSS	83,000	39,000
pH	(1)	(1)

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

(g) Heat treatment contact cooling water.

SUBPART G—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of titanium heat treated	
Cyanide	1,200	540
Lead	1,900	860
Zinc	6,600	2,800
Ammonia	600,000	260,000
Fluoride	270,000	120,000
Titanium	9,200	4,100
Oil and grease	93,000	54,000
TSS	190,000	83,000
pH	(1)	(1)

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

(h) Surface treatment spent baths.

SUBPART G—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of titanium surface treated	
Cyanide	48	19
Lead	67	32
Zinc	230	93
Ammonia	21,000	9,400
Fluoride	9,500	4,200
Titanium	330	150
Oil and grease	3,200	1,900
TSS	6,600	3,100
pH	(1)	(1)

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

(i) Surface treatment rinsewater.

SUBPART G—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of titanium surface treated	
Cyanide	6,100	2,500
Lead	8,900	4,200
Zinc	31,000	13,000
Ammonia	2,800,000	1,200,000
Fluoride	1,200,000	500,000
Titanium	43,000	19,000
Oil & grease	420,000	250,000
TSS	870,000	410,000
pH	(1)	(1)

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

(j) Surface treatment wet APC blowdown.

SUBPART G—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of titanium surface treated	
Cyanide	43	20
Lead	71	34
Zinc	250	100
Ammonia	23,000	10,000
Fluoride	10,000	4,500
Titanium	350	150
Oil and grease	3,400	2,000
TSS	7,000	3,800
pH	(1)	(1)

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

(k) Alkaline cleaning spent baths.

SUBPART G—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of titanium alkaline cleaned	
Cyanide	740	310
Lead	1,100	510
Zinc	3,700	1,600
Ammonia	340,000	150,000
Fluoride	150,000	67,000
Titanium	5,200	2,300
Oil and grease	51,000	31,000
TSS	100,000	50,000
pH	(1)	(1)

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

(l) Alkaline cleaning rinsewater.

SUBPART G—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of titanium alkaline cleaned	
Cyanide	800	330
Lead	1,200	550
Zinc	4,000	1,700
Ammonia	370,000	160,000
Fluoride	160,000	73,000
Titanium	5,700	2,500
Oil and grease	55,000	33,000
TSS	110,000	54,000
pH	(1)	(1)

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

(m) Tumbling wastewater.

SUBPART G—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of titanium tumbled	
Cyanide	220	95
Lead	330	160
Zinc	1,200	480
Ammonia	110,000	46,000
Fluoride	47,000	21,000
Titanium	1,600	720
Oil and grease	16,000	9,500
TSS	32,000	15,000
pH	(1)	(1)

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

(n) Sawing/grinding spent lubricants.

SUBPART G—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of titanium sawed or ground	
Cyanide	14.0	6.0
Lead	21.0	9.9
Zinc	73.0	30.0
Ammonia	6,600.0	2,900.0
Fluoride	3,000.0	1,300.0
Titanium	100.0	45.0
Oil and grease	990.0	600.0
TSS	2,000.0	970.0
pH	(1)	(1)

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

(o) Degreasing spent solvents.

There shall be no discharge of process wastewater pollutants.

§ 471.72 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).

Except as provided in 40 CFR 125.30–125.32, 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 available technology economically achievable (BAT):

(a) Cold rolling spent lubricants.

SUBPART G—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of titanium cold rolled	
Cyanide	67	27
Lead	940	430
Zinc	340	140
Ammonia	45,000	20,000
Fluoride	20,000	8,800
Titanium	230	100

(b) Hot rolling contact lubricant-cooling water.

SUBPART G—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of titanium hot rolled with contact lubricant-coolant water	
Cyanide	86	34
Lead	1,200	560
Zinc	440	180
Ammonia	57,000	25,000
Fluoride	26,000	11,000
Titanium	300	130

(c) Extrusion spent lubricants.

SUBPART G—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of titanium extruded	
Cyanide	55	22
Lead	77	36
Zinc	280	120
Ammonia	37,000	16,000
Fluoride	16,000	7,200
Titanium	190	82

(d) Forging spent lubricants.

There shall be no discharge of process wastewater pollutants.

(e) Forging die contact cooling water.

SUBPART G—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of titanium forged	
Cyanide	60	24
Lead	840	390
Zinc	310	130
Ammonia	40,000	18,000
Fluoride	18,000	7,900
Titanium	210	90

(f) Forging wet APC blowdown.

SUBPART G—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of titanium forged	
Cyanide	40	16
Lead	570	260
Zinc	210	85
Ammonia	27,000	12,000
Fluoride	12,000	5,300
Titanium	140	61

(g) Heat treatment contact cooling water.

SUBPART G—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of titanium heat treated	
Cyanide	90	36
Lead	1,300	590
Zinc	460	190
Ammonia	60,000	26,000
Fluoride	27,000	12,000
Titanium	310	140

(h) Surface treatment spent baths.

SUBPART G—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of titanium surface treated	
Cyanide	32	13
Lead	45	21
Zinc	160	67
Ammonia	21,000	9,400
Fluoride	9,500	4,200
Titanium	110	48

(i) Surface treatment rinsewater.

SUBPART G—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of titanium surface treated	
Cyanide	420	170
Lead	5,900	2,700
Zinc	2,200	890
Ammonia	280,000	120,000
Fluoride	130,000	56,000
Titanium	1,500	630

(j) Surface treatment wet APC blowdown.

SUBPART G—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of titanium surface treated	
Cyanide	3.4	1.4
Lead	48.0	22.0
Zinc	17.0	7.1
Ammonia	2,300.0	1,000.0
Fluoride	1,000.0	450.0
Titanium	12.0	5.1

(k) Alkaline cleaning spent baths.

SUBPART G—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of titanium alkaline cleaned	
Cyanide	130	51
Lead	710	330
Zinc	650	270
Ammonia	85,000	37,000
Fluoride	39,000	17,000
Titanium	440	190

(l) Alkaline cleaning rinsewater.

SUBPART G—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of titanium alkaline cleaned	
Cyanide	55	22
Lead	770	360
Zinc	280	120
Ammonia	37,000	16,000
Fluoride	16,000	7,300
Titanium	190	83

(m) Tumbling wastewater.

SUBPART G—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of titanium tumbled	
Cyanide	16.0	6.3
Lead	220.0	100.0
Zinc	81.0	33.0
Ammonia	11,000.0	4,600.0
Fluoride	4,700.0	2,100.0
Titanium	55.0	24.0

(n) Sawing/grinding spent lubricants.

SUBPART G—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of titanium sawed or ground	
Cyanide	10.0	4.0
Lead	14.0	6.5
Zinc	51.0	21.0
Ammonia	6,600.0	2,900.0
Fluoride	3,000.0	1,300.0
Titanium	34.0	15.0

(o) Degreasing spent solvents.

There shall be no discharge of process wastewater pollutants.

§ 471.73 New source performance standards (NSPS).

Any new source subject to this subpart must achieve the following new source performance standards (NSPS): The limitations for cyanide, lead, zinc, ammonia, fluoride, and titanium are the same as specified in § 471.72. The limitations for TSS, oil and grease, and pH are the same as specified in § 471.76.

§ 471.74 Pretreatment standards for existing sources (PSES).

Except as provided in 40 CFR 403.7 and 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and by [36 months after promulgation] achieve the following pretreatment standards for existing sources (PSES): The limitations for cyanide, lead, zinc, ammonia, fluoride, and titanium are the same as specified in § 471.72.

§ 471.75 Pretreatment standards for new sources (PSNS).

Except as provided in 40 CFR 403.7, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources (PSNS): The limitations for cyanide, lead, zinc, ammonia, fluoride, and titanium are the same as specified in § 471.72.

§ 471.76 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT).

Except as provided in 40 CFR 125.30–125.32 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 conventional pollutant control technology (BCT):

(a) Cold rolling spent lubricants.

SUBPART G—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg pound per billion pounds of titanium cold rolled	
Oil and Grease	3,600	3,600
TSS	5,000	4,000
pH	(1)	(1)

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

(b) Hot rolling contact lubricant-cooling water.

SUBPART G—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg pound per billion pounds of titanium hot rolled with contact lubricant-coolant water	
Oil and Grease	4,800	4,800
TSS	6,500	5,200
pH	(1)	(1)

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

(c) Extrusion spent lubricants.

SUBPART G—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg pound per billion pounds of titanium extruded	
Oil and Grease	2,700	2,700
TSS	4,100	3,300
pH	(1)	(1)

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

(d) Forging spent lubricants.

There shall be no discharge of process wastewater pollutants.

(e) Forging die contact cooling water.

SUBPART G—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg pound per billion pounds of titanium forged	
Oil and Grease	3,00	3,000
TSS	4,500	3,600
pH	(1)	(1)

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

(f) Forging wet APC blowdown.

SUBPART G—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg pound per billion pounds of titanium forged	
Oil and Grease	2,000	2,000
TSS	3,000	2,400
pH	(1)	(1)

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

(g) Heat treatment contact cooling water.

SUBPART G—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg pound per billion pounds of titanium heat treated	
Oil and Grease	4,500	4,500
TSS	6,800	5,400
pH	(1)	(1)

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

(h) Surface treatment spent baths.

SUBPART G—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of titanium surface treated	
Oil and Grease	1,600	1,600
TSS	2,400	1,920
pH	(1)	(1)

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

(i) Surface treatment rinsewater.

SUBPART G—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of titanium surface treated	
Oil and Grease	21,000	21,000
TSS	32,000	25,000
pH	(1)	(1)

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

(j) Surface treatment wet APC blowdown.

SUBPART G—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of titanium surface treated	
Oil and Grease	170	170
TSS	260	200
pH	(1)	(1)

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

(k) Alkaline cleaning spent baths.

SUBPART G—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of titanium alkaline cleaned	
Oil and Grease	6,400	6,400
TSS	9,600	7,700
pH	(1)	(1)

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

(l) Alkaline cleaning rinsewater.

SUBPART G—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of titanium alkaline cleaned	
Oil and Grease	2,800	2,800
TSS	4,100	3,300
pH	(1)	(1)

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

(m) Tumbling wastewater.

SUBPART G—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of titanium tumbled	
Oil and Grease	790	790
TSS	1,200	950
ph	(1)	(1)

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

(n) Sawing/grinding spent lubricants.

SUBPART G—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of titanium sawed or ground	
Oil and Grease	500	500
TSS	750	600
pH	(1)	(1)

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

(o) Degreasing spent solvents.

There shall be no discharge of process wastewater pollutants.

Subpart H—Uranium Forming Subcategory

§ 471.80 Applicability; description of the uranium forming subcategory.

This subpart applies to discharges of pollutants to waters of the United States, and introductions of pollutants into publicly owned treatment works from the process operations of the uranium forming subcategory.

§ 471.81 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

Except as provided in 40 CFR 125.30–125.32, any existing point source subject to this subpart must achieve the following effluent limitations for the process operations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT):

(a) Extrusion spent lubricants.

There shall be no discharge process wastewater pollutants.

(b) Extrusion tool contact cooling water.

SUBPART H—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of uranium extruded	
Cadmium	180	78
Copper	930	520
Nickel	930	660
Ammonia	69,000	30,000
Fluoride	31,000	14,000
Radium [1]	5	5
Uranium	1,000	470
Oil and grease	10,000	6,200
TSS	21,000	10,000
pH	(2)	(2)

[1] Values in picocuries per liter.
[2] Within the range of 7.5 to 10.0 at all times.

(c) Extrusion press and solution heat treatment contact cooling water.

SUBPART H—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of extruded uranium heat treated	
Cadmium	920	410
Copper	5,200	2,700
Nickel	5,200	3,500
Ammonia	360,000	160,000
Fluoride	160,000	72,000
Radium [1]	5	5
Uranium	5,600	2,500
Oil and grease	54,000	33,000
TSS	110,000	53,000
pH	(2)	(2)

[1] Values in picocuries per liter.
[2] Within the range of 7.5 to 10.0 at all times.

(d) Forging spent lubricants.

There shall be no discharge of process wastewater pollutants.

(e) Forging solution heat treatment contact cooling water.

SUBPART H—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of forged uranium heat treated	
Cadmium	970	430
Copper	5,400	2,800
Nickel	5,500	3,600
Ammonia	380,000	170,000
Fluoride	170,000	75,000
Radium [1]	5	5
Uranium	5,800	2,600
Oil and grease	57,000	34,000
TSS	120,000	55,000
pH	(2)	(2)

[1] Values in picocuries per liter.
[2] Within the range of 7.5 to 10.0 at all times.

(f) Surface treatment spend baths.

SUBPART H—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of uranium surface treated	
Cadmium	12.0	5.3
Copper	12.0	36.0
Nickle	68.0	45.0
Ammonia	4,700.0	2,100.0
Fluoride	2,100.0	940.0
Radium [1]	5	5
Uranium	73.0	32.0
Oil and grease	710.0	430.0
TSS	1,500.0	600.0
pH	[2]	[2]

[1] Values in picocuries per liter.
[2] Within the range of 7.5 to 10.0 at all times.

(g) Surface treatment rinsewater.

SUBPART H—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of uranium surface treated	
Cadmium	910	400
Copper	5,100	2,700
Nickle	5,200	3,400
Ammonia	360,000	160,000
Fluoride	160,000	71,000
Radium [1]	5	5
Uranium	5,500	2,400
Oil and grease	54,000	32,000
TSS	110,000	52,000
pH	[2]	[2]

[1] Values in picocuries per liter.
[2] Within the range of 7.5 to 10.0 at all times.

(h) Surface treatment wet APC blowdown

SUBPART H—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of uranium surface treated	
Cadmium	25	11
Copper	140	74
Nickle	140	94
Ammonia	9,000	4,300
Fluoride	4,400	2,000
Radium [1]	5	5
Uranium	150	68
Oil and grease	1,500	690
TSS	3,000	1,400
pH	[2]	[2]

[1] Values in picocuries per liter.
[2] Within the range of 7.5 to 10.0 at all times.

(i) Sawing/grinding spent emulsions.

SUBPART H—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of uranium sawed or ground	
Cadmium	1.10	.50
Copper	5.90	3.10
Nickle	6.00	3.90
Ammonia	410.00	180.00
Fluoride	180.00	82.00
Radium [1]	5	5
Uranium	6.40	2.80
Oil and grease	62.00	37.00
TSS	130.00	60.00
pH	[2]	[2]

[1] Values in picocuries per liter.
[2] Within the range of 7.5 to 10.0 at all times.

(j) Post-sawing/grinding rinsewater.

SUBPART H—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of sawed or ground uranium rinsed	
Cadmium	13.0	5.7
Copper	72.0	38.0
Nickle	73.0	48.0

SUBPART H—BPT—Continued

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
Ammonia	5,100.0	2,200.0
Fluoride	2,300.0	1,000.0
Radium [1]	5	5
Uranium	78.0	35.0
Oil and grease	760.0	460.0
TSS	1,600.0	740.0
pH	[2]	[2]

[1] Values in picocuries per liter.
[2] Within the range of 7.5 to 10.0 at all times.

(k) Degreasing spend solvents.

There shall be no discharge of process wastewater pollutants.

§ 471.82 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).

Except as provided in 40 CFR 125.30–125.32, 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 available technology economically achievable (BAT):

(a) Extrusion spent lubricants.

There shall be no discharge of process wastewater pollutants.

(b) Extrusion tool contact cooling water.

SUBPART H—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of uranium extruded	
Cadmium	10.0	4.1
Copper	69.0	32.0
Nickel	28.0	19.0
Ammonia	6,600.0	3,000.0
Fluoride	3,100.0	1,400.0
Radium [1]	5	5
Uranium	38.0	16.0

[1] Values in picocuries per liter.

(c) Extrusion press and solution heat treatment contact cooling water.

SUBPART H—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of extruded uranium heat treated	
Cadmium	54	22
Copper	350	170
Nickel	150	100
Ammonia	33,000	16,000
Fluoride	16,000	7,200
Radium [1]	5	5
Uranium	190	82

[1] Values in picocuries per liter.

(d) Forging spent lubricants.

There shall be no discharge of process wastewater pollutants.

(e) Forging solution heat treatment contact cooling water.

SUBPART H—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of uranium extruded	
Cadmium	57	23
Copper	360	170
Nickel	160	110
Ammonia	33,000	17,000
Fluoride	17,000	7,500
Radium [1]	5	5
Uranium	200	85

[1] Values in picocuries per liter.

(f) Surface treatment spent baths water.

SUBPART H—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of uranium extruded	
Cadmium	7.1	2.8
Copper	46.0	22.0
Nickel	20.0	13.0
Ammonia	4,700.0	2,100.0
Fluoride	2,100.0	940.0
Radium [1]	5	5
Uranium	25.0	11.0

[1] Values in picocuries per liter.

(g) Surface treatment rinsewater.

SUBPART H—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of uranium surface treated	
Cadmium	54	22
Copper	340	160
Nickel	150	100
Ammonia	33,000	16,000
Fluoride	16,000	7,100
Radium [1]	5	5
Uranium	190	81

[1] Values in picocuries per liter.

(h) Surface treatment wet APC blowdown.

SUBPART H—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of uranium surface treated	
Cadmium	15.0	5.9
Copper	95.0	45.0
Nickel	41.0	27.0
Ammonia	9,900.0	4,300.0
Fluoride	4,400.0	2,000.0
Radium [1]	5	5

SUBPART H—BAT—Continued

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
Uranium	51.0	22.0

[1] Values in picocuries per liter.

(i) Sawing/grinding spent emulsions.

SUBPART H—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of uranium sawed or ground	
Cadmium	.60	.20
Copper	4.00	1.90
Nickel	1.70	1.10
Ammonia	410.00	180.00
Fluoride	180.00	92.00
Radium [1]	5	5
Uranium	2.10	.90

[1] Values in picocuries per liter.

(j) Post-sawing/grinding rinsewater.

SUBPART H—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of sawed or ground uranium rinsed	
Cadmium	7.6	3.0
Copper	49.0	23.0
Nickel	21.0	14.0
Ammonia	5,100.0	2,200.0
Fluoride	2,300.0	1,000.0
Radium [1]	5	5
Uranium	26.0	11.0

[1] Values in picocuries per liter.

(k) Degreasing spent solvents.

There shall be no discharge of process wastewater pollutants.

§ 471.83 New source performance standards (NSPS).

Any new source subject to this subpart must achieve the following new source performance standards (NSPS): The limitations for cadmium, copper, nickel, ammonia, fluoride, uranium, and radium are the same as specified in § 471.82. The limitations for TSS, oil and grease and pH are the same as specified in § 471.86.

§ 471.84 Pretreatment standards for existing sources (PSES).

Except as provided in 40 CFR 403.7 and 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and by [36 months after promulgation] achieve the following pretreatment standards for existing sources (PSES): The limitations for cadmium, copper, nickel, ammonia, fluoride, uranium, and radium are the same as specified in § 471.82.

§ 471.85 Pretreatment standards for new sources (PSNS).

Except as provided in 40 CFR 403.7, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources (PSNS): The limitations for cadmium, copper, nickel, ammonia, fluoride, uranium, and radium are the same as specified in § 471.82.

§ 471.86 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT).

Except as provided in 40 CFR 125.30–125.32 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 conventional pollutant control technology (BCT):

(a) Extrusion spent lubricants.

There shall be no discharge of process wastewater pollutants.

(b) Extrusion tool contact cooling water.

SUBPART H—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of uranium extruded	
Oil and grease	520	520
TSS	780	620
pH	[1]	[1]

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

(c) Extrusion press and solution heat treatment contact cooling water.

SUBPART H—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of extruded uranium heat treated	
Oil and grease	2,700	2,700
TSS	4,100	3,300
pH	[1]	[1]

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

(d) Forging spent lubricants.

There shall be no discharge of process wastewater pollutants.

(e) Forging solution heat treatment contact cooling water.

SUBPART H—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of forged uranium heat treated	
Oil and grease	2,800	2,800
TSS	4,300	3,400
pH	[1]	[1]

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

(f) Surface treatment spent baths water.

SUBPART H—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of uranium surface treated	
Oil and grease	360	360
TSS	530	430
pH	[1]	[1]

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

(g) Surface treatment rinsewater.

SUBPART H—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of uranium surface treated	
Oil and grease	2,700	2,700
TSS	4,000	3,200
pH	[1]	[1]

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

(h) Surface treatment wet APC blowdown.

SUBPART H—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of uranium surface treated	
Oil and grease	740	740
TSS	1,100	890
pH	[1]	[1]

[1] With the range of 7.5 to 10 0 at all times.

(i) Sawing/grinding spent emulsions.

SUBPART H—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of uranium sawed or ground	
Oil and grease	31	31
TSS	47	37
pH	[1]	[1]

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

(j) Post-sawing/grinding rinsewater.

SUBPART H—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of sawed or ground uranium rinsed	
Oil and grease	380	380
TSS	570	460
pH	(1)	(1)

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

(k) Degreasing spent solvents.

There shall be no discharge of process wastewater pollutants.

Subpart I—Zinc Forming Subcategory

§ 471.90 Applicability; description of the zinc forming subcategory.

This subpart applies to discharges of pollutants to waters of the United States, and introductions of pollutants into publicly owned treatment works from the process operations of the zinc forming subcategory.

§ 471.91 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

Except as provided in 40 CFR 125.30–125.32, any existing point source subject to this subpart must achieve the following effluent limitations for the process operations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT):

(a) Rolling spent neat oils.

There shall be no discharge of process wastewater pollutants.

(b) Rolling spent emulsions.

SUBPART I—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zinc rolled with emulsions	
Chromium	.60	.30
Cyanide	.40	.20
Zinc	2.00	.80
Oil and grease	28.00	17.00
TSS	57.00	27.00
pH	(1)	(1)

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

(c) Rolling contact lubricant-coolant water.

SUBPART I—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zinc rolled with contact lubricant-coolant water	
Chromium	150	62
Cyanide	100	42
Zinc	510	210
Oil and grease	6,900	4,200
TSS	14,000	6,000
pH	(1)	(1)

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

(d) Drawing spent emulsions.

SUBPART I—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zinc drawn with emulsions	
Chromium	3.5	1.4
Cyanide	2.3	1.0
Zinc	12.0	4.9
Oil and grease	160.0	96.0
TSS	330.0	160.0
pH	(1)	(1)

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

(e) Direct chill casting contact cooling water.

SUBPART I—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zinc cast by the direct chill method	
Chromium	220	91
Cyanide	150	60
Zinc	730	310
Oil and grease	10,000	6,000
TSS	21,000	9,600
pH	(1)	(1)

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

(f) Stationary casting contact cooling water.

There shall be no discharge of process wastewater pollutants.

(g) Heat treatment contact cooling water.

SUBPART I—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zinc heat treated	
Chromium	330	140
Cyanide	220	91
Zinc	1,100	460
Oil and grease	15,000	9,100
TSS	31,000	15,000
pH	(1)	(1)

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

(h) Surface treatment spent baths.

SUBPART I—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zinc surface treated	
Chromium	4.2	1.7
Cyanide	2.8	1.1
Zinc	14.0	5.8
Oil and grease	160.0	110.0
TSS	30.0	190.0
pH	(1)	(1)

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

(i) Surface treatment rinsewater.

SUBPART I—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zinc surface treated	
Chromium	2,100	870
Cyanide	1,400	580
Zinc	7,100	3,000
Oil and grease	97,000	58,000
TSS	200,000	95,000
pH	(1)	(1)

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

(j) Alkaline cleaning spent baths.

SUBPART I—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zinc alkaline cleaned	
Chromium	.30	.10
Cyanide	.20	.10
Zinc	1.00	.40
Oil and grease	14.00	8.60
TSS	29.00	14.00
pH	(1)	(1)

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

(k) Alkaline cleaning rinsewater.

SUBPART I—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zinc alkaline cleaned	
Chromium	2,500	1,000
Cyanide	1,700	690
Zinc	8,400	3,500
Oil and grease	110,000	69,000
TSS	230,000	110,000
pH	(1)	(1)

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

(l) Sawing/grinding spent lubricants.

SUBPART I—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zinc sawed or ground	
Chromium	24.0	10.0
Cyanide	16.0	6.6
Zinc	80.0	33.0
Oil and grease	1,100.0	660.0
TSS	2,300.0	1,100.0
pH	(1)	(1)

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

(m) Degreasing spent solvents.

There shall be no discharge of process wastewater pollutants.

§ 471.92 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT):

Except as provided in 40 CFR 125.30–125.32 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 available technology economically achievable (BAT):

(a) Rolling spent neat oils.

There shall be no discharge of process wastewater pollutants.

(b) Rolling spent emulsions.

SUBPART I—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zinc rolled with emulsions	
Chromium	.50	.20
Cyanide	.30	.10
Zinc	1.40	.60

(c) Rolling contact lubricant-coolant water.

SUBPART I—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zinc rolled with contact lubricant-coolant water	
Chromium	13.0	5.2
Cyanide	6.9	2.8
Zinc	35.0	15.0

(d) Drawing spent emulsions.

SUBPART I—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zinc drawn with emulsions	
Chromium	3.00	1.20
Cyanide	1.60	.60
Zinc	8.20	3.40

(e) Direct chill casting contact cooling water.

SUBPART I—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zinc cast by the direct chill method	
Chromium	19.0	7.5
Cyanide	10.0	4.0
Zinc	51.0	21.0

(f) Statutory casting contact cooling water.

There shall be no discharge of process wastewater pollutants.

(g) Heat treatment contact cooling water.

SUBPART I—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zinc heat treated	
Chromium	28.0	11.0
Cyanide	15.0	6.1
Zinc	78.0	32.0

(h) Surface treatment spent baths.

SUBPART I—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zinc surface treated	
Chromium	3.50	1.40
Cyanide	1.90	.80
Zinc	10.00	4.00

(i) Surface treatment rinsewater.

SUBPART I—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zinc surface treated	
Chromium	180	73
Cyanide	97	39

SUBPART I—BAT—Continued

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
Zinc	500	200

(j) Alkaline cleaning spent baths.

SUBPART I—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zinc alkaline cleaned	
Chromium	.30	.10
Cyanide	.10	.10
Zinc	.70	.30

(k) Alkaline cleaning rinsewater.

SUBPART I—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zinc alkaline cleaned	
Chromium	2,100	660
Cyanide	1,100	460
Zinc	5,600	2,400

(l) Sawing/grinding spent lubricants.

SUBPART I—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pounds per billion pounds) of zinc sawed or groundd	
Chromium	20.0	8.2
Cyanide	11.0	4.4
Zinc	56.0	23.0

(m) Degreasing spent solvents.

There shall be no discharge of process wastewater pollutants.

§ 471.93 New source performance standards (NSPS).

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

(a) Rolling spent neat oils.

There shall be no discharge of process wastewater pollutants.

(b) Rolling spent emulsions.

SUBPART I—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zinc rolled with emulsions	
Chromium	.50	.20

SUBPART I—NSPS—Continued

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
Cyanide	.30	.10
Zinc	1.40	.60
Oil and grease	14.00	14.00
TSS	21.00	17.00
pH	(1)	(1)

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

(c) Rolling contact lubricant-coolant water.

SUBPART I—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zinc rolled with contact lubricant-coolant water	
Chromium	13.0	5.2
Cyanide	6.9	2.8
Zinc	35.0	15.0
Oil and grease	350.0	350.0
TSS	520.0	420.0
pH	(1)	(1)

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

(d) Drawing spent emulsions.

SUBPART I—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zinc drawn with emulsions	
Chromium	3.00	1.20
Cyanide	1.60	.60
Zinc	8.20	3.40
Oil and grease	80.00	80.00
TSS	120.00	96.00
pH	(1)	(1)

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

(e) Direct chill casting contact cooling water.

SUBPART I—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zinc cast by the direct chill method	
Chromium	19.0	7.5
Cyanide	10.0	4.0
Zinc	51.0	21.0
Oil and grease	500.0	500.0
TSS	750.0	600.0
pH	(1)	(1)

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

(f) Stationary casting contact cooling water.

There shall be no discharge of process wastewater pollutants.

(g) Heat treatment contact cooling water.

SUBPART I—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zinc heat treated	
Chromium	28.0	11.0
Cyanide	15.0	6.1
Zinc	78.0	32.0
Oil and grease	780.0	780.0
TSS	1,160.0	910.0
pH	(1)	(1)

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

(h) Surface treatment spent baths.

SUBPART I—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zinc surface treated	
Chromium	3.50	1.40
Cyanide	1.60	.60
Zinc	10.00	4.00
Oil and grease	65.00	65.00
TSS	140.00	110.00
pH	(1)	(1)

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

(i) Surface treatment rinsewater.

SUBPART I—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zinc surface treated	
Chromium	180	73
Cyanide	97	39
Zinc	500	200
Oil and grease	4,900	4,900
TSS	7,300	5,800
pH	(1)	(1)

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

(j) Alkaline cleaning spent baths.

There shall be no discharge of process wastewater pollutants.

SUBPART I—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zinc alkaline cleaned	
Chromium	.20	.10
Cyanide	.10	.10
Zinc	.70	.20
Oil and grease	7.20	7.20
TSS	11.00	8.00
pH	(1)	(1)

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

(k) Alkaline cleaning rinsewater.

SUBPART I—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zinc alkaline cleaned	
Chromium	2,100	850
Cyanide	1,100	450
Zinc	5,800	2,400
Oil and grease	57,000	57,000
TSS	86,000	69,000
pH	(1)	(1)

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

(l) Sawing/grinding spent lubricants.

SUBPART I—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zinc sawed or ground	
Chromium	20.0	8.2
Cyanide	11.0	4.4
Zinc	56.0	23.0
Oil and grease	550.0	550.0
TSS	820.0	660.0
pH	(1)	(1)

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

(m) Degreasing spent solvents.

There shall be no discharge of process wastewater pollutants.

§ 471.94 Pretreatment standards for existing sources. [Reserved]

§ 471.95 Pretreatment standards for new sources (PSNS).

Except as provided in 40 CFR 403.7, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources (PSNS): The limitations for chromium, cyanide, and zinc are the same as specified in § 471.92.

§471.96 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT).

Except as provided in 40 CFR 125.30–125.32 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 conventional pollutant control technology (BCT): The limitations for TSS, oil and grease, and pH are the same as specified in § 471.91.

Subpart J—Zirconium/Hafnium Forming Subcategory

§ 471.100 Applicability; description of the zirconium/hafnium forming subcategory.

This subpart applies to discharges of pollutants to waters of the United States, and introductions of pollutants into publicly owned treatment works from the process operations of the zirconium/hafnium forming subcategory.

§ 471.101 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

Except as provided in 40 CFR 125.30–125.32, any existing point source subject to this subpart must achieve the following effluent limitations for the process operations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT):

(a) Drawing spent lubricants.

There shall be no discharge of process wastewater pollutants.

(b) Extrusion spent emulsions.

SUBPART J—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zirconium/hafnium extruded with emulsions	
Chromium	33.0	13.0
Cyanide	21.0	8.9
Nickel	140.0	94.0
Ammonia	9,900.0	4,300.0
Fluoride	4,400.0	2,000.0
Hafnium	150.0	67.0
Zirconium	150.0	67.0
Oil and grease	1,500.0	890.0
TSS	3,000.0	1,400.0
pH	(1)	(1)

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

(c) Extrusion press hydraulic fluid leakage.

SUBPART J—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zirconium/hafnium extruded	
Chromium	160	67
Cyanide	110	44
Nickel	710	470
Ammonia	49,000	22,000
Fluoride	22,000	9,800
Hafnium	760	340
Zirconium	760	340
Oil and grease	7,400	4,400
TSS	15,000	7,200
pH	(1)	(1)

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

(d) Extrusion press and solution heat treatment contact cooling water.

SUBPART J—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of extruded zirconium/hafnium heat treated	
Chromium	130	51
Cyanide	83	34
Nickel	550	360
Ammonia	38,000	17,000
Fluoride	17,000	7,500
Hafnium	580	260
Zirconium	580	260
Oil and grease	5,700	3,400
TSS	12,000	5,600
pH	(1)	(1)

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

(e) Tube reducing spent lubricants.

There shall be no discharge of process wastewater pollutants.

(f) Forging solution heat treatment contact cooling water.

SUBPART J—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of forged zirconium/hafnium heat treated	
Chromium	15.0	6.3
Cyanide	10.0	4.2
Nickel	67.0	44.0
Ammonia	4,700.0	2,000.0
Fluoride	2,100.0	920.0
Hafnium	72.0	32.0
Zirconium	72.0	32.0
Oil and grease	700.0	420.0
TSS	1,400.0	680.0
pH	(1)	(1)

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

(g) Surface treatment spent baths.

SUBPART J—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zirconium/hafnium surface treated	
Chromium	180	72
Cyanide	120	48
Nickel	770	510
Ammonia	53,000	23,000
Fluoride	24,000	11,000
Hafnium	820	360
Zirconium	820	360
Oil and grease	8,000	4,800
TSS	16,000	7,800
pH	(1)	(1)

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

(h) Surface treatment rinsewater.

SUBPART J—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zirconium/hafnium surface treated	
Chromium	6,700	2,600
Cyanide	4,400	1,600
Nickel	29,000	19,000
Ammonia	2,000,000	900,000
Fluoride	910,000	400,000
Hafnium	31,000	14,000
Zirconium	31,000	14,000
Oil and grease	310,000	180,000
TSS	630,000	300,000
pH	(1)	(1)

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

(i) Alkaline cleaning spent baths.

SUBPART J—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zirconium/hafnium alkaline cleaned	
Chromium	940	380
Cyanide	620	260
Nickel	4,100	2,700
Ammonia	280,000	120,000
Fluoride	130,000	56,000
Hafnium	4,400	1,900
Zirconium	4,400	1,900
Oil and grease	43,000	26,000
TSS	87,000	42,000
pH	(1)	(1)

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

(j) Alkaline cleaning rinsewater.

SUBPART J—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zirconium/hafnium alkaline	
Chromium	24,000	10,000
Cyanide	16,000	6,600
Nickel	110,000	70,000
Ammonia	7,400,000	3,200,000
Fluoride	3,300,000	1,500,000
Hafnium	110,000	50,000
Zirconium	110,000	50,000
Oil and grease	1,100,000	660,000
TSS	2,300,000	1,100,000
pH	(1)	(1)

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

(k) Sawing/grinding spent lubricants.

SUBPART J—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zirconium/hafnium sawed or ground	
Chromium	4.0	1.6
Cyanide	2.6	1.1
Nickel	17.0	11.0
Ammonia	1,200.0	530.0
Fluoride	540.0	240.0
Hafnium	18.0	8.2

SUBPART J—BPT—Continued

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
Zirconium	18.0	8.2
Oil and grease	180.0	110.0
TSS	370.0	180.0
pH	(1)	(1)

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

(l) Sawing/grinding wet APC blowdown.

There shall be no discharge of process wastewater pollutants.

(m) Degreasing spent solvents.

There shall be no discharge of process wastewater pollutants.

(n) Degreasing rinsewater.

SUBPART J—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zirconium/hafnium degreased	
Chromium	890	370
Cyanide	590	240
Nickel	3,900	2,600
Ammonia	270,000	120,000
Fluoride	120,000	54,000
Hafnium	4,200	1,800
Zirconium	4,200	1,800
Oil and grease	41,000	23,000
TSS	83,000	40,000
pH	(1)	(1)

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

§ 471.102 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).

Except as provided in 40 CFR 125.30–125.32, 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 available technology economically achievable (BAT):

(a) Drawing spent lubricants.

There shall be no discharge of process wastewater pollutants.

(b) Extrusion spent emulsions.

SUBPART J—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zirconium/hafnium extruded with emulsions	
Chromium	27.0	11.0
Cyanide	15.0	5.9
Nickel	41.0	27.0
Ammonia	9,900.0	4,300.0
Fluoride	4,400.0	2,000.0
Hafnium	51.0	22.0
Zirconium	51.0	22.0

(c) Extrusion press hydraulic fluid leakage.

SUBPART J—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zirconium/hafnium extruded	
Chromium	140	56
Cyanide	74	30
Nickel	200	140
Ammonia	40,000	22,000
Fluoride	22,000	9,800
Hafnium	220	110
Zirconium	220	110

(d) Extrusion press and solution heat treatment contact cooling water.

SUBPART J—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of extruded zirconium/hafnium heat treated	
Chromium	110	43
Cyanide	57	23
Nickel	160	110
Ammonia	390,000	1,700,0
Fluoride	1,700,0	750,0
Hafnium	220	86
Zirconium	220	86

(e) Tube reducing spent lubricants.

There shall be no discharge of process wastewater pollutants.

(f) Forging solution heat treatment contact cooling water.

SUBPART J—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of forged zirconium/hafnium heat treated	
Chromium	130	52
Cyanide	70	28
Nickel	190	130
Ammonia	4,700,0	2,000,0
Fluoride	2,100,0	920,0
Hafnium	240	100
Zirconium	240	100

(g) Surface treatment spent baths.

SUBPART J—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zirconium/hafnium surface treated	
Chromium	150	60
Cyanide	80	32
Nickel	220	150
Ammonia	59,000	23,000
Fluoride	24,000	11,000

SUBPART J—BAT—Continued

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
Hafnium	220	120
Zirconium	220	120

(h) Surface treatment rinsewater.

SUBPART J—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zirconium/hafnium surface treated	
Chromium	570	230
Cyanide	310	120
Nickel	840	570
Ammonia	200,000	90,000
Fluoride	91,000	40,000
Hafnium	1,100	460
Zirconium	1,100	460

(i) Alkaline cleaning spent baths.

SUBPART J—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zirconium/hafnium alkaline cleaned	
Chromium	750	320
Cyanide	430	170
Nickel	1,200	790
Ammonia	290,000	120,000
Fluoride	130,000	55,000
Hafnium	1,500	640
Zirconium	1,500	640

(j) Alkaline cleaning rinsewater.

SUBPART J—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zirconium/hafnium alkaline cleaned	
Chromium	2,000	830
Cyanide	1,100	440
Nickel	3,000	2,000
Ammonia	740,000	320,000
Fluoride	330,000	150,000
Hafnium	3,800	1,700
Zirconium	3,800	1,700

(k) Sawing/grinding spent lubricants.

SUBPART J—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zirconium/hafnium sawed or ground	
Chromium	3.30	1.40
Cyanide	1.80	.70
Nickel	5.00	3.30
Ammonia	1,200.00	530.00
Fluoride	540.00	240.00

SUBPART J—BAT—Continued

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
Hafnium	6.20	2.70
Zirconium	6.20	2.70

(l) Sawing/grinding wet APC blowdown.

There shall be no discharge of process wastewater pollutants.

(m) Degreasing spent solvents.

There shall be no discharge of process wastewater pollutants.

(n) Degreasing rinsewater.

SUBPART J—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zirconium/hafnium degreased	
Chromium	75	30
Cyanide	41	16
Nickel	110	75
Ammonia	27,000	12,000
Fluoride	12,000	5,400
Hafnium	140	61
Zirconium	140	61

§ 471.103 New source performance standards (NSPS).

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

(a) Drawing spent lubricants.

There shall be no discharge of process wastewater pollutants.

(b) Extrusion spent emulsions.

SUBPART J—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zirconium/hafnium extruded with emulsions	
Chromium	27.0	11.0
Cyanide	15.0	5.9
Nickel	41.0	27.0
Ammonia	9,900.0	4,300.0
Fluoride	4,400.0	2,000.0
Hafnium	51.0	22.0
Zirconium	51.0	22.0
Oil and grease	740.0	740.0
TSS	1,100.0	890.0
pH	(1)	(1)

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

(c) Extrusion press hydraulic fluid leakage.

SUBPART J—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zirconium/hafnium extruded	
Chromium	140	56
Cyanide	74	30
Nickel	200	140
Ammonia	49,000	22,000
Fluoride	22,000	9,800
Hafnium	260	110
Zirconium	260	110
Oil and grease	3,700	3,700
TSS	5,600	4,400
pH	(1)	(1)

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

(d) Extrusion press and solution heat treatment contact cooling water.

SUBPART J—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of extruded zirconium/hafnium heat treated	
Chromium	11.0	4.3
Cyanide	5.7	2.3
Nickel	16.0	11.0
Ammonia	3,800.0	1,700.0
Fluoride	1,700.0	750.0
Hafnium	20.0	8.6
Zirconium	20.0	8.6
Oil and grease	290.0	290.0
TSS	430.0	340.0
pH	(1)	(1)

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

(e) Tube reducing spent lubricants.

There shall be no discharge of process wastewater pollutants.

(f) Forging solution heat treatment contact cooling water.

SUBPART J—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of forged zirconium/hafnium heat treated	
Chromium	13.0	5.2
Cyanide	7.0	2.8
Nickel	19.0	13.0
Ammonia	4,700.0	2,000.0
Fluoride	2,100.0	920.0
Hafnium	24.0	10.0
Zirconium	24.0	10.0
Oil and grease	350.0	350.0
TSS	520.0	420.0
pH	(1)	(1)

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

(g) Surface treatment spent baths.

SUBPART J—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zirconium/hafnium surface treated	
Chromium	150	60
Cyanide	80	32
Nickel	220	150
Ammonia	53,000	23,000
Fluoride	24,000	11,000
Hafnium	280	120
Zirconium	280	120
Oil and grease	4,000	4,000
TSS	6,000	4,800
pH	(1)	(1)

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

(h) Surface treatment rinsewater.

SUBPART J—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zirconium/hafnium surface treated	
Chromium	570	230
Cyanide	310	120
Nickel	840	570
Ammonia	200,000	90,000
Fluoride	91,000	40,000
Hafnium	1,100	460
Zirconium	1,100	460
Oil and grease	15,000	15,000
TSS	23,000	18,000
pH	(1)	(1)

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

(i) Alkaline cleaning spent baths.

SUBPART J—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zirconium/hafnium alkaline cleaned	
Chromium	790	320
Cyanide	430	170
Nickel	1,200	790
Ammonia	280,000	120,000
Fluoride	130,000	56,000
Hafnium	1,500	640
Zirconium	1,500	640
Oil and grease	21,000	21,000
TSS	32,000	26,000
pH	(1)	(1)

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

(j) Alkaline cleaning rinsewater.

SUBPART J—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zirconium/hafnium alkaline cleaned	
Chromium	2,000	830
Cyanide	1,100	440

SUBPART J—NSPS—Continued

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
Nickel	3,000	2,000
Ammonia	740,000	320,000
Fluoride	330,000	150,000
Hafnium	3,800	1,700
Zirconium	3,800	1,700
Oil and grease	55,000	55,000
TSS	83,000	66,000
pH	(1)	(1)

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

(k) Sawing/grinding spent lubricants.

SUBPART J—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zirconium/hafnium sawed or ground	
Chromium	3.30	1.40
Cyanide	1.80	.70
Nickel	5.00	3.30
Ammonia	1,200.00	530.00
Fluoride	540.00	240.00
Hafnium	6.20	2.70
Zirconium	6.20	2.70
Oil and grease	90.00	90.00
TSS	140.00	110.00
pH	(1)	(1)

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

(l) Sawing/grinding wet APC blowdown.

There shall be no discharge of process wastewater pollutants.

(m) Degreasing spent solvents.

There shall be no discharge of process wastewater pollutants.

(n) Degreasing rinsewater.

SUBPART J—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zirconium/hafnium degreased	
Chromium	75	30
Cyanide	41	16
Nickel	110	75
Ammonia	27,000	12,000
Fluoride	12,000	5,400
Hafnium	140	61
Zirconium	140	61
Oil and grease	2,000	2,000
TSS	3,000	2,400
pH	(1)	(1)

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

§ 471.104 Pretreatment standards for existing sources (PSES).

Except as provided in 40 CFR 403.7 and 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and by [36 months after promulgation] achieve the following pretreatment standards for existing sources (PSES): The limitations for chromium, cyanide, nickel, ammonia, fluoride, hafnium, and zirconium are the same as specified in § 471.102.

§ 471.105 Pretreatment standards for new sources (PSNS).

Except as provided in 40 CFR 403.7, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR 403 and achieve the following pretreatment standards for new sources (PSNS): The limitations for chromium, cyanide, nickel, ammonia, fluoride, hafnium, and zirconium are the same as specified in § 471.102.

§ 471.106 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT).

Except as provided in 40 CFR 125.30–125–32 any existing source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT):

(a) Drawing spent lubricants.

There shall be no discharge of process wastewater pollutants.

(b) Extrusion spent emulsions.

SUBPART J—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zirconium/hafnium extruded with emulsions	
Oil and grease	1,600	800
TSS	3,600	1,400
pH	(1)	(1)

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

(c) Extrusion press hydraulic fluid leakage.

SUBPART J—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zirconium/hafnium extruded	
Oil and grease	7,400	4,400
TSS	15,000	7,200
pH	(1)	(1)

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

(d) Extrusion press and solution heat treatment contact cooling water.

SUBPART J—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of extruded zirconium/hafnium heat treated	
Oil and grease	570	340
TSS	1,200	560
pH	(1)	(1)

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

(e) Tube reducing spent lubricants.

There shall be no discharge of process wastewater pollutants.

(f) Forging solution heat treatment contact cooling water.

SUBPART J—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of forged zirconium/hafnium heat treated	
Oil and grease	700	420
TSS	1,400	660
pH	(1)	(1)

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

(g) Surface treatment spent baths.

SUBPART J—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zirconium/hafnium surface treated	
Oil and grease	8,000	4,800
TSS	16,000	7,800
pH	(1)	(1)

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

(h) Surface treatment rinsewater.

SUBPART J—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zirconium/hafnium surface treated	
Oil and grease	31,000	18,000
TSS	63,000	30,000
pH	(1)	(1)

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

(i) Alkaline cleaning spent baths.

SUBPART J—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zirconium/hafnium alkaline cleaned	
Oil and grease	43,000	26,000
TSS	87,000	42,000
pH	(1)	(1)

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

(j) Alkaline cleaning rinsewater.

SUBPART J—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zirconium/hafnium alkaline cleaned	
Oil and grease	110,000	66,000
TSS	230,000	110,000
pH	(1)	(1)

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

(k) Sawing/grinding spent lubricants.

SUBPART J—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of zirconium/hafnium sawed or ground	
Oil and grease	180	110
TSS	370	180
pH	(1)	(1)

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

(l) Sawing/grinding wet APC blowdown.

There shall be no discharge of process wastewater pollutants.

(m) Degreasing spent solvents.

There shall be no discharge of process wastewater pollutants.

(n) Degreasing rinsewater.

SUBPART J—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of zirconium/hafnium degreased	
Oil and grease	4,100	2,400
TSS	8,300	4,000
pH	(1)	(1)

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

Subpart K—Iron and Steel/Copper/Aluminum Metal Powder Production and Powder Metallurgy Subcategory

§ 471.110 Applicability; description of the iron and steel/copper/aluminum metal powder production and powder metallurgy subcategory.

This subpart applies to discharges of pollutants to waters of the United States, and introductions of pollutants into publicly owned treatment works from the process operations of the iron and steel/copper/aluminum metal powder production and powder metallurgy subcategory.

§ 471.111 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

Except as provided in 40 CFR 125.30–125.32, any existing point source subject to this subpart must achieve the following effluent limitations for the process operations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT):

(a) Metal powder production atomization wastewater.

SUBPART K—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of iron, copper, and aluminum powder wet atomized.	
Copper	9,600	5,000
Cyanide	1,500	600
Lead	2,100	1,000
Aluminum	32,000	16,000
Iron	6,000	3,100
Oil and Grease	100,000	60,000
TSS	210,000	98,000
pH	(1)	(1)

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

(b) Metal powder production milling wastewater.

SUBPART K—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pounds) of iron, copper, and aluminum powder wet milled	
Copper	3,200	1,700
Cyanide	480	200
Lead	700	330
Aluminum	11,000	5,300
Iron	2,000	1,000
Oil and Grease	33,000	20,000
TSS	68,000	33,000
pH	(1)	(1)

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

(c) Metal powder production wet APC blowdown.

SUBPART K—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound/billion pound) of iron, copper, and aluminum powder produced	
Copper	5,000	2,600
Cyanide	770	320
Lead	1,100	530
Aluminum	17,000	8,400
Iron	3,200	1,600
Oil and Grease	53,000	32,000
TSS	110,000	51,000
pH	(12)	(1)

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

(d) Sizing/repressing spent lubricants.

There shall be no discharge of process wastewater pollutants.

(e) Oil-Resin impregnation. wastewater.

SUBPART K—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billions pounds) of iron, copper, and aluminum powder metallurgy parts impregnated with oil-resin	
Copper	140.0	75.0
Cyanide	22.0	8.9
Lead	31.0	15.0
Aluminum	480.0	240.0
Iron	89.0	45.0
Oil and grease	1,500.0	890.0
TSS	3,100.0	1,500.0
ph	(1)	(1)

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

(f) Steam treatment wet APC blowdown.

SUBPART K—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of iron, copper, and aluminum powder metallurgy parts steam treated	
Copper	5,400	2,800
Cyanide	820	340
Lead	1,200	570
Aluminum	18,000	9,100
Iron	3,400	1,700
Oil and grease	57,000	34,000
TSS	120,000	55,000
ph	(1)	(1)

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

(g) Tumbling, burnishing and cleaning wastewater.

SUBPART K—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billions pounds) of iron, copper, and aluminum powder metallurgy parts tumbled, burnished, or cleaned	
Copper	14,000	7,200
Cyanide	2,100	860
Lead	3,000	1,400
Aluminum	46,000	23,000
Iron	8,600	4,400
Oil and grease	140,000	86,000
TSS	290,000	140,000
ph	(1)	(1)

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

(h) Sawing/grinding spent lubricants

SUBPART K—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billions) pounds of iron, copper, and aluminum powder metallurgy parts sawed or ground	
Copper	1,900	1,000
Cyanide	290	120
Lead	420	200
Aluminum	6,400	3,200
Iron	1,200	610
Oil and grease	20,000	12,000
TSS	41,000	20,000
ph	(1)	(1)

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

(i) Degreasing spent solvents.

There shall be no discharge of process wastewater pollutants.

§ 471.112 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).

Except as provided in 40 CFR 125.30–125.32, 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 available technology economically achievable (BAT):

(a) Metal powder production atomization wastewater.

SUBPART K—BPT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billon pounds) of iron, copper, and aluminum powder wet atomized	
Copper	9,600	5,000
Cyanide	1,500	660
Lead	1,400	660
Aluminum	32,000	16,000
Iron	6,000	3,100

(b) metal powder production milling wastewater.

SUBPART K—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billon pounds) of iron, copper, and aluminum powder wet milled	
Copper	3,200	1,700
Cyanide	490	200
Lead	470	220
Aluminum	11,000	5,300
Iron	2,900	1,000

(c) Metal powder production wet APC blowdown.

SUBPART K—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billon pounds) of iron, copper, and aluminum powder produced	
Copper	5,000	2,600
Cyanide	770	300
Lead	740	340
Aluminum	17,000	8,400
Iron	3,200	1,000

(d) Sizing/repressing spent lubricants.

There shall be no discharge of process wastewater pollutants.

(e) Oil-Resin impregnation wastewater.

SUBPART K—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billon pounds) of iron, copper, and aluminum powder metallurgy parts impregnated with oil-resin	
Copper	140.0	75.0
Cyanide	22.0	8.9
Lead	21.0	9.7
Aluminum	480.0	240.0
Iron	83.0	45.0

(f) Steam treatment wet APC blowdown.

SUBPART K—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billon pounds) of iron, copper, and aluminum powder metallurgy parts steam treated	
Copper	540	280
Cyanide	82	34
Lead	800	370
Aluminum	1,800	910
Iron	340	170

SUBPART K—BAT—Continued

(g) Tumbling, burnishing and cleaning wastewater.

SUBPART K—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billon pounds) of iron, copper, and aluminum powder metallurgy parts tumbled, burnished, or cleaned	
Copper	1,400	720
Cyanide	210	86
Lead	200	93
Aluminum	4,600	2,300
Iron	880	440

(h) Sawing/grinding spent lubricants.

SUBPART K—BAT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billon pounds) of iron, copper, and aluminum powder metallurgy parts sawed or ground	
Copper	1,900	1,000
Cyanide	290	120
Lead	280	130
Aluminum	6,400	3,200
Iron	1,200	610

(i) Degreasing spent solvents.

There shall be no discharge of process wastewater pollutants.

§ 471.113 New source performance standards (NSPS).

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

The limitations for copper, cyanide, lead, aluminum, and iron are the same as specified in § 471.112. The limitations for TSS, oil and grease, and pH are the same as specified in § 471.116.

§ 471.114 Pretreatment standards for existing sources (PSES).

Except as provided in 40 CFR 403.7 and 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and by [36 months after promulgation] achieve the following pretreatment standards for existing sources (PSES): The limitations for copper, cyanide, lead, aluminum, and

iron are the same as specified in § 471.112.

§ 471.115 Pretreatment standards for new sources (PSNS).

Except as provided in 40 CFR 403.7, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources (PSNS): The limitations for copper, cyanide, lead, aluminum, and iron are the same as specified in § 471.112.

§ 471.116 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT).

Except as provided in 40 CFR 125.30–125.32 any existing source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT):

(a) Metal powder production atomization wastewater.

SUBPART K—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of iron, copper, and aluminum powder wet atomized	
Oil and grease	100,000	60,000
TSS	210,000	98,000
pH	(1)	(1)

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

(b) Metal powder production milling wastewater.

SUBPART K—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of iron, copper, and aluminum powder wet milled	
Oil and grease	33,000	20,000
TSS	68,000	33,000
pH	(1)	(1)

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

(c) Metal powder production wet APC blowdown.

SUBPART K—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of iron, copper, and aluminum powder produced	
Oil and grease	53,000	32,000
TSS	110,000	51,000
pH	(1)	(1)

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

(d) Sizing/repressing spent lubricants.

There shall be no discharge of process wastewater pollutants.

(e) Oil-resin impregnation wastewater.

SUBPART K—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of iron, copper, and aluminum powder metallurgy parts impregnated with oil-resin	
Oil and grease	1,500	890
TSS	3,100	1,500
pH	(1)	(1)

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

(f) Steam treatment wet APC blowdown.

SUBPART K—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of iron, copper, and aluminum powder metallurgy parts steam treated	
Oil and grease	5,700	3,400
TSS	12,000	5,500
pH	(1)	(1)

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

(g) Tumbling, burnishing and cleaning wastewater.

SUBPART K—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of iron, copper, and aluminum powder metallurgy parts tumbled, burnished, or cleaned	
Oil and grease	14,000	8,600
TSS	29,000	14,000
pH	(1)	(1)

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

(h) Sawing/grinding spent lubricants.

SUBPART K—BCT

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kkg (pound per billion pounds) of iron, copper, and aluminum powder metallurgy parts sawed or ground	
Oil and grease	20,000	12,000
TSS	41,000	20,000
pH	(1)	(1)

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

(i) Degreasing spent solvents.

There shall be no discharge of process wastewater pollutants.

[FR Doc. 84-5284 Filed 3-2-84; 8:45 am]
BILLING CODE 6560-50-M