ENVIRONMENTAL PROTECTION AGENCY

[40 CFR Part 424]

FERROALLOY MANUFACTURING POINT SOURCE CATEGORY

Proposed Effluent Limitations Guidelines for Existing Sources and Standards of Performance and Pretreatment Standards for New Sources

Notice is hereby given that effluent limitations guidelines for existing sources and standards of performance and pretreatment standards for new sources set forth in tentative form below are proposed by the Environmental Protection Agency (EPA) for the open electric furnaces with wet air pollution control devices subcategory (Subpart A), the covered electric furnaces and other smelting operations with wet air pollution control devices subcategory (Subpart B), the slag processing subcategory (Subpart C), and the noncontact cooling water subcategory (Subpart D) of the ferroalloys manufacturing category of point sources pursuant to sections 301, 304(b) and (c), 306(b) and 307(c) of the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251, 1311, 1314(b) and (c), 1316(b) and 1317(c); 86 Stat. 816 et seq.; P.L. 92-500) (the "Act").

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

Section 304(b) of the Act requires the Administrator to publish regulations providing guidelines for effluent limitations setting forth the degree of effluent reduction attainable through the application of the best practicable control technology currently available and the degree of effluent reduction attainable through the application of the best control measures and practices achievable including treatment techniques, process and procedure innovations, operating methods and other alternatives. The regulations proposed herein set forth effluent limitations guidelines, pursuant to section 304(b) of the Act, for the open electric furnaces with wet air pollution control devices subcategory (Subpart A), the covered electric furnaces and other smelting operations with wet air pollution control devices subcategory (Subpart B), the slag processing subcategory (Subpart C), and the noncontact cooling water subcategory of the ferroalloy manufacturing category.

(2) *New sources.* Section 306 of the Act requires the achievement by new sources of a Federal standard of performance providing for the control of the discharge of pollutants which reflects the greatest degree of effluent reduction which the Administrator determines to be achievable through application of the best available demonstrated control technology, processes, operating methods, or other alternatives, including, where practicable, a standard permitting no discharge of pollutants.

Section 306(b)(1)(B) of the Act requires the Administrator to propose regulations establishing Federal standards of performance for categories of new sources included in a list published pursuant to section 306(b)(1)(A) of the Act. The Administrator published in the FEDERAL REGISTER of January 16, 1973 (38 FR 1624), a list of 27 source categories, including the ferroalloy manufacturing source category. The regulations proposed herein set forth the standards of performance applicable to new sources for the open electric furnaces with wet air pollution control devices subcategory (Subpart A), the covered electric furnaces and other smelting operations with wet air pollution control devices subcategory (Subpart B), the slag processing subcategory (Subpart C), and the noncontact cooling water subcategory (Subpart D) of the ferroalloys manufacturing category.

Section 307(c) of the Act requires the Administrator to promulgate pretreatment standards for new sources at the same time that standards of performance for new sources are promulgated pursuant to section 306. Sections 424.15, 424.25, 424.35 and 424.45, proposed below, provide pretreatment standards for new sources within the open electric furnaces with wet air pollution control devices subcategory (Subpart A), the covered electric furnaces and other smelting operations with wet air pollution control devices subcategory (Subpart B), the slag processing subcategory (Subpart C), and the noncontact cooling water subcategory (Subpart D), of the ferroalloy manufacturing category.

Section 304(c) of the Act requires the Administrator to issue to the States and appropriate water pollution control agencies information on the processes, procedures or operating methods which result in the elimination or reduction of the discharge of pollutants to implement standards of performance under Section 306 of the Act. The Development Document referred to below provides, pursuant to section 304(c) of the Act, information on such processes, procedures or operating methods.

(3) *Thermal discharges.* Section 316(a) of the Act provides a means for further consideration of thermal effluent limitations required under sections 301 and 306 of the Act. Section 316(a) states that with respect to any point source subject to the provisions of sections 301 or 306, whenever the owner or operator of any such source, after opportunity for public hearing, can demonstrate to the satisfaction of the Administrator (or, if, appropriate, the State) that any effluent limitation proposed for the control of the thermal component of any discharge from such source will require effluent limitations more stringent than necessary to assure the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on the body of water into which the discharge is to be made, the Administrator (or, if appropriate, the State) may impose a different effluent limitation for the thermal component of the discharge than would ordinarily be required under sections 301 and 306 of the Act. Effluent limitation imposed under section 316(a) must assure the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on the body of water into which the discharge is to be made.

(b) *Summary and basis of proposed effluent limitations guidelines for existing sources and standards of performance and pretreatment standards for new sources.*—(1) *General methodology.* The effluent limitations guidelines and standards of performance proposed herein were developed in the following manner. The point source category was first studied for the purpose of determining whether separate limitations and standards are appropriate for different segments within the category. This analysis included a determination of whether differences in raw material used, product produced, manufacturing process employed, age, size, waste water constituents and other factors require development of separate limitations and standards for different segments of the point source category. The raw waste characteristics for each such segment were then identified. This included an analysis of (1) the source, flow and volume of water used in the process employed and the sources of waste and waste waters in the operation; and (2) the constituents of all waste water. The constituents of the waste waters which should be subject to effluent limitations guidelines and standards of performance were identified.

The control and treatment technologies existing within each segment were identified. This included an identification of each distinct control and treatment technology, including both in-plant and end-of-process technologies, which are existent or capable of being designed for each segment. It also included an identification of, in terms of the amount of constituents and the chemical, physical, and biological characteristics of pollutants, the effluent level resulting from the application of each of the technologies. The problems, limitations and reliability of each treatment and control technology were also identified. In addition, the non-water quality environmental impact, such as the effects of the application of such technologies upon other pollution problems, including air,

solid waste, noise and radiation, was identified. The energy requirements of each control and treatment technology were determined as well as the cost of the application of such technologies.

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

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

The pretreatment standards proposed herein are intended to be complementary to the pretreatment standard proposed for existing sources under Part 128 of 40 CFR. The bases for such standards are set forth in the FEDERAL REGISTER of July 19, 1973, 38 FR 19236. The provisions of Part 128 are equally applicable to sources which would constitute "new sources," under section 306 if they were to discharge pollutants directly to navigable waters except for § 128.133. That section provides a pretreatment standard for "incompatible pollutants" which requires the application of the "best practicable control technology currently available," subject to an adjustment for amounts of pollutants removed by the publicly owned treatment works. Since the pretreatment standards proposed herein apply to new sources, §§ 424.15, 424.25, 424.35, and 424.45 below amend § 128.133 to require application of the standard of performance for new sources rather than the "best practicable" standard applicable to existing sources under sections 301 and 304(b) of the Act.

(2) Summary of conclusions with respect to the open electric furnaces with wet air pollution control devices subcategory (Subpart A), the covered electric furnaces and other smelting operations with wet air pollution control devices subcategory (Subpart B), the slag processing subcategory (Subpart C), and the noncontact cooling water subcategory (Subpart D) of the ferroalloys manufacturing category of point sources.

(i) *Categorization.* For purposes of establishing effluent limitations and standards of performance, the ferroalloy manufacturing source category was divided into subcategories on the basis of processes employed, furnace types and water uses. The subcategories are: open electric furnaces with wet air pollution control devices (Subpart A); covered electric furnaces and other smelting operations with wet air pollution control devices (Subpart B); slag processing (Subpart C); and noncontact cooling water (Subpart D).

The consideration of other factors such as waste water constituents and waste control technologies further substantiates the above categorization. This method of subcategorization permits an equitable waste load to those furnaces which are controlled for air pollution with wet systems (since they are separately categorized) and is not excessively permissive to those furnaces which are controlled with dry systems. Any furnace with wet air pollution controls will be controlled by the regulations of either Subpart A or B, depending upon the type of furnace, and also by the regulations of Subpart D, since all electric furnaces have cooling water. Existing furnaces with dry air pollution control systems, or no air pollution control systems will be allowed to discharge only under the provisions of Subpart D.

(ii) *Waste characteristics.* The known significant pollutants contained in the waste water from this industry are as follows, by subpart:

Parameters	Subpart			
	A	B	C	D
Heat content				X
Suspended solids	X	X	X	X
Chromium	X	X	X	X
Hexavalent chromium	X	X	------	X
Total cyanide		X		
Manganese	X	X	X	
Oil	X	X	X	X
Phenols	X	X		
Orthophosphate	X	X	------	X

While other pollutants, such as dissolved solids, iron, aluminum, zinc, chloride, copper, etc., sometimes may be present in the process waste waters, effluent limitations were not developed for these constituents because (i) they are discharged intermittently and in small quantities, (ii) they are effectively removed from the effluent by the application of waste water control and treatment technology required for the removal of process waste water constituents which are subject to effluent limitations, (iii) there is insufficient data available upon which to base effluent limitations, or (iv) the known methods for their removal from waste water are prohibitively expensive at this time.

In the Development Document, phosphorus compounds were reported as phosphate [$(PO_4)^{-3}$]. However, for consistency with EPA methods of analysis and reporting, these value have been converted to orthophosphate [P].

(iii) *Origin of waste water pollutants in the ferroalloy manufacturing category.*—(1) Open electric furnaces with wet air pollution control devices subcategory. Wet air cleaning devices collect particulates from furnace gases, either by gas scrubbing or by water sprays prior to electrostatic precipitation. The particulates are generally oxides of the material being smelted. In this type of furnace, the off-gases are combusted and cyanide and most of the phenol thereby destroyed. Waste water from this source, therefore, contains large quantities of suspended solids, and smaller quantities of manganese and chromium, depending upon the product being smelted. Smaller amounts of phenol and oil are also found in the waste water.

(2) *Covered electric furnaces and other smelting operations with wet air pollution control devices subcategory.* Wastes are essentially similar to those from open electric furnaces with wet air pollution controls (regulated in Subpart A), but since in covered smelting furnaces the off-gas is not combusted, cyanide and phenol are present in significant quantities in the scrubber waste water.

(3) *Slag processing subcategory.* Wastes in this subcategory are derived from either concentration or "shotting" processes. The concentration process uses the "float-sink" method where the metal particles sink to the bottom, and the slag floats in the water, for recovery of metallic values from the slag. "Shotting" involves the granulation of molten slag in water. The concentration process is generally used on ferrochromium slags, while shotting may be performed on ferromanganese slags. The major pollutant is suspended solids, with manganese and chromium present in smaller concentrations.

(4) *Noncontact cooling water subcategory.* The principal waste from this source is heat, although chromium and phosphates may also be present if the water is recirculated and treated for corrosion control, etc. Suspended solids and other parameters may be present in higher concentrations than those of the intake if the water is recirculated, because of concentration effects in the cooling tower. However, noncontact cooling water is water used for cooling which does not directly contact the product and should therefore contain no pollutants assignable to the production process. For example, chromium may be present in cooling tower blowdown, if chromate corrosion compounds are used, but none should be present because of the product. Manganese, which is not used as a water treatment agent, would not be present in noncontact cooling water, although the water is used to cool a furnace smelting ferromanganese.

(iv) *Control and treatment technology.* Waste water control techniques have been used in the industry, particularly for treating waste water from scrubbers, but the sophistication of the systems and techniques varies widely. Where the huge quantities of water needed for furnace cooling are not available on a once through basis (for instance, if the plant draws its water supply from wells), cooling towers with recycle of cooling water are commonly utilized. Waste water control techniques such as water conservation, and good housekeeping techniques are generally available to reduce the

quantities of pollutants ultimately discharged from ferroalloy plants. These control techniques have been effectively demonstrated and are considered normal practice in the industry where restricted supplies of water have dictated the implementation of water conservation measures.

Process modifications may be available to reduce the quantity of pollutants in the waste waters from plants of other industries. However, there does not seem to be any process modification in the ferroalloys industry, other than the use of an open furnace with a baghouse rather than a scrubber for the control of air emissions, which will reduce or eliminate the raw waste loads of pollutants in the process waste water. Water conservation techniques may reduce the amount of water used in ferroalloy plants and also can reduce the amount of pollutants in the effluent following treatment. Some of these include (i) using cooling towers and recycling water rather than using water for once-through cooling; (ii) using cooling tower blowdown as makeup for scrubbers; and (iii) recycling the overflow from scrubber water clarifiers.

Good housekeeping techniques can reduce the amount of pollutants in the waste waters from ferroalloy plants. These include techniques to (1) prevent the formation of standing pools of water in the raw and finished materials storage areas; (2) maintain environmentally adequate settling lagoons of sufficient size and good design (e.g., impervious liners); and (3) maintain piping installed for waste water flow.

(v) *Treatment and control technology within subcategories.* Waste water treatment and control technologies have been studied for each subcategory of the industry to determine what is (i) the best practicable control technology currently available; (ii) the best available technology economically achievable; and (iii) the best available demonstrated control technology, processes, operating methods or other alternatives.

(1) *Treatment in the open electric furnaces with wet air pollution control devices subcategory.* Control and treatment techniques consist of physical-chemical treatment for removal of metals and suspended solids, with sedimentation and clarification. Sedimentation and clarification may be accomplished in settling ponds (or lagoons), in clarifiers or in sand or multi-media filters. Settling ponds and clarifiers, when well designed and operated, are capable of produring effluent levels of 25 mg/l suspended solids, independent of the influent concentrations. This means that greater removals are accomplished if the influent is more concentrated. For example, a scrubber on a furnace which utilizes less water (for the same particulate removal) will have less of an effluent load after similar clarification than a scrubber which uses more water. Sand filters (when well designed and operated) are capable of reducing the suspended solids effluent concentration to 10 mg/l. In all types of clarification equipment, proper operation is important, since (for example) excessive solids buildup in a lagoon can reduce the detention time and thereby reduce the solids which are removed.

The effluent after clarification may be recycled back to the scrubber. This may possibly require additional treatment such as softening for removal of calcium and magnesium, which may cause scaling. Blowdown from softening systems should be treated prior to discharge.

Open furnaces which constitute new sources have available another technology which permits no discharge of waterborne pollutants to navigable waters. This is the use of dry dust collectors (i.e., fabric filters or baghouses) rather than wet collectors for air pollution control. Properly designed baghouses are capable of collection efficiencies at least as good as wet scrubbers, and have been extensively utilized in the industry on this type of furnace. Additionally, baghouses can be installed on existing furnaces which are presently not controlled for air emissions. There is also a potential for the recovery and reuse of the metallic particulates. Although it is possible to replace existing wet scrubbers with baghouses, the capital investment required makes this appear to be an unfeasible alternative at this time.

It has been determined that best practicable control technology currently available for this subcategory consists of use of a clarifier flocculator, with chemical treatment where needed, sludge dewatering and water recirculation at the scrubber. Best available technology economically achievable consists of best practicable control technology currently available plus use of sand or multi-media filters and optimum process water recirculation. The best available demonstrated control technology, processes, operating methods, or other alternatives for new sources includes the use of dry dust collectors (such as fabric filters or baghouses) for air pollution abatement, rather than wet scrubbers.

(2) *Treatment in the covered electric furnaces and other smelting operations with wet air pollution control devices subcategory.* Control and treatment techniques are essentially identical to those described for open electric furnaces above, with the additional need for the destruction of cyanide and phenol. Cyanide destruction can be accomplished by alkaline chlorination, although other methods such as oxidation or ozonation may be used depending on the design of the water treatment system. Alkaline chlorination can reduce the effluent cyanide concentration to about 0.2 mg/l. No plant surveyed was specifically treating for phenols. Phenols can be converted to relatively innocuous compounds by breakpoint chlorination, oxidation (trickling filter) and by biological methods. The latter would probably require the addition of bacterial nutrients.

The effluent after clarification may be recycled back to the scrubber. This may possibly require additional treatment such as softening.

The best practicable control technology currently available has been determined to be use of a clarifier flocculator, sludge dewatering, and biological or chemical treatment, the latter by alkaline (breakpoint) chlorination and other chemical treatment as needed. The best available control technology economically achievable and best available demonstrated control technology, processes, operating methods, or other alternatives for new sources consists of the use of best practicable control technology currently available, plus use of sand or multi-media filters and optimum process water recirculation.

(3) *Treatment in the slag processing subcategory.* Treatment is essentially sedimentation. Lagoons or settling ponds or clarifier flocculators may be used. In slag processing, water is important only as a cooling or transport medium and the quality of the recirculated water is of importance only to the extent of abrasion of pumps, valves, etc. Therefore, sedimentation for recirculation need not be carried out to the levels which would be necessary if the water were to be discharged directly and no blowdown from the recirculating system is necessary.

The best practicable control technology currently available is sedimentation in clarifier-flocculators. The best available technology economically achievable and the best available demonstrated control technology, processes, operating methods, or other alternatives for new sources is total recirculation of process waste water, which may be accomplished after sedimentation in clarifier-flocculators.

(4) *Treatment in the noncontact cooling water subcategory.* Applicable treatment and control techniques include cooling ponds and towers with recirculation and reuse of water. Where chromate corrosion compounds are added to the recycled water, reduction of hexavalent chromium and subsequent removal of the less harmful trivalent chromium by precipitation is necessary. If phosphate compounds are used, rather than chromates, removal is also necessary. Cooling towers may effect a 5–20° F approach to the wet bulb temperature (i.e., 5–20° F above the wet bulb temperature), while cooling ponds are capable of minimizing the temperature rise over that of ambient water temperatures to 5° F.

Cooling ponds, spray canals or spray ponds, and cooling towers may be utilized for the control of discharge temperatures of noncontact cooling water. They do differ, however, with respect to costs, and with respect to land area requirements. A cooling pond, where the water is simply allowed to remain quiescent in the open air until it has reached approximately the temperature of natural surface water bodies in that area, is the least expensive of the options, as regards both investment and annual costs. Operating costs are negligible. However, large areas of land may be required for such ponds—it was estimated that one plant, operating at 22 mw would require 17.5 ac, or 0.8 ac/mw, for control

of the thermal discharge. Spray canals or spray ponds, which utilize evaporative, rather than convective cooling (the principle behind cooling ponds), require only about 10 percent of the area required for cooling ponds. Cooling towers, which also utilize evaporative, rather than convective cooling, require even less area than do spray ponds—about a quarter acre for a 30 mw plant. Some plants, because of land availability problems, may not be able to utilize cooling ponds, and would therefore have to select cooling towers or spray ponds as an alternative. However, in the long run these plants would be ahead, since they could more easily go on to a recirculation system than could a plant utilizing cooling ponds. Cooling towers and spray canals, however, do cost more than cooling ponds, both in investment and operating costs.

Best practicable control technology consists of the use of cooling ponds to reduce the heat load in the effluent. If land is not available for cooling ponds, spray ponds or cooling towers may be substituted. Where recirculation is presently being used, chemical treatment may be necessary to reach the specified levels for chromium and phosphate. Best available technology economically achievable and the best available demonstrated control technology, processes, operating methods, or other alternatives for new sources consists of partial recirculation, through the use of cooling towers, and chemical treatment of blowdown. The limitations for best available technology and new sources are based upon a blowdown rate of 5 percent of the circulation rate. Apart from this blowdown, there would be no other discharge from this subcategory.

(vi) *Cost estimates for control of waste water pollutants in the ferroalloy manufacturing subcategory.* The annual cost, including depreciation, capital costs, and operating and power costs, of achieving the levels of treatment specified for 1977 for the smelting and noncontact cooling water segments was estimated. Costs for adequate land disposal of treatment residues were not estimated. The annual cost varies from $.041 to $12.26/ton, and from 0.021 to 3.39 percent of the listed sale price of the alloy. Annual cost varies from $0.017 to 0.876/mwhr. The annual cost for these segments of achieving the levels of treatment and control specified for 1983 was similarly estimated. The cost varies from $1.23 to $21.95/ton, and from 0.61 to 5.64 percent of the listed sale price of the alloy. Annual cost varies from $0.512 to $1.880/mwhr. These figures reflect the costs which would be incurred from plants without any water pollution controls. The lower figures represent those which would be incurred for the treatment of noncontact cooling water only. The higher figures are the sum of the costs of treatment of scrubber waste water and noncontact cooling water. The cost of treatment of slag processing waste water is estimated at $1.28/ton processed to meet the 1977 limitations and $1.31/ton processed to meet the 1983 and new source limitations. Preliminary estimates of the annual cost of gas cleaning (including equipment, accessories, operating costs, etc.) in dollars/ton of product have been made on the basis of a 30 mw open furnace and for four common products: high carbon (HC) ferromanganese, HC ferrochromium, 50 percent ferrosilicon and silicomanganese. These figures indicate that the annual cost of a baghouse is approximately half that of a scrubber system with the attendant water treatment system ($4.51 to 14.68/ton, vs $8.37 to 39.72/ton).

(vii) *Establishing daily maximum limitations.* The twenty-four hour maximum limitations, except pH, are generally twice the 30-day average limitations. These daily maximum limitations should be approached only under unusual conditions, such as treatment system upsets, and the like, and are based upon waste generation at existing exemplary plants. It is intended that these limitations and the maximum 30-day average limitations be applied on a "building block" basis.

Megawatt-hour (mwhr) equal to 1,000 kilowatt hours was used as the unit of production, for most of the categories, for the following reasons: power usage (about 30 percent of production costs) is accurately monitored and generally automatically recorded at each furnace; the raw waste load is more uniform when expressed as kg/mwhr (lb/mwhr); tonnage production varies widely depending on the product at the same power usage, and different alloys can be produced in the same furnace; and furnaces are generally described in the trade as "15 mw" or "30 mw", rather than "50 ton" or "100 ton", as is common practice in the steel industry.

(viii) *Nonwater quality aspects of pollution control.* Power requirements for waste water treatment systems other than cooling towers are generally low, and range from less than 0.1 percent to 2.0 percent of the power used in the smelting furnaces. The power requirements for cooling towers may range up to about 1.8 percent of the power used in the smelting furnaces. Power requirements for the use of the most power-intensive treatment systems for process and cooling water could thus amount to about 3 or 4 percent of the power used in production. It is probably a safe assumption that all new furnaces will be equipped with air pollution abatement devices. A high energy scrubber on an open furnace requires 10 percent of furnace power (i.e., productive power) for operation. Based on the necessary pressure drops, the power requirement for a fabric filter system is one-third that of a high energy scrubber.

One of the nonwater quality impacts of the treatment of waste water from ferroalloy plants consists of increased volumes of sludge resulting from increased waste water treatment and requiring proper disposal. Solid wastes containing hazardous substances must be controlled to prevent their reentry via the land into surface and subsurface waters.

Solid constituents from waste treatment operations should be disposed in an acceptable landfill. An acceptable landfill means a landfill at which complete protection is provided for the long term, for the quality of surface and sub-surface waters, from hazardous substances contained in wastes deposited therein, and against hazard to public health and the environment. Such landfill sites should be located and engineered to avoid direct hydraulic continuity with surface and sub-surface waters, and any leachate or sub-surface flow into the disposal area should be contained within the site unless treatment is provided. A sampling and analysis program of leachates is advisable. The location of the disposal site should be permanently recorded in the appropriate office of legal jurisdiction.

(ix) *Economic impact analysis.* The conclusion drawn from a study of the economic impact of proposed water pollution controls is that the costs will be minimal in the ferroalloys industry. The costs to meet the effluent limitations are not expected to affect production levels or employment. It is not anticipated that the effluent limitations will threaten the economic viability of any plants in the industry. Hence, no community impacts are anticipated. Continued strong competition from foreign imports may affect this industry, but this industry will not be significantly affected by the proposed water effluent limitations.

Increases in annual operating costs to meet 1977 standards are estimated to amount to $4.0 million. To maintain return on investment in the face of these cost increases would require price increases of 1.2 percent. It is difficult to project the industry's pricing reactions to such cost increases for the following reasons: (1) The industry is very competitive and ferroalloys are commodity-type products with little product differentiation; (2) Foreign products are available at lower prices than domestically produced ferroalloys and imports have supplied as much as 40 percent of the domestic market; (3) The major portion of the plants (14 out of 22) will experience no cost increases to comply with 1977 standards. Thus, there is a great deal of uncertainty as to the likelihood of price increases.

By 1983, the annual costs of meeting the effluent limitations will have risen to $8.2 million. To maintain return on investment in the face of these increased costs would necessitate price increases of 2.3 percent. In the short run the market conditions cited above might discourage price increases of this magnitude. In the long run the industry can be expected to attempt to recover the cost increases and maintain profitability.

The report entitled "Development Document for Proposed Effluent Limitations Guidelines and New Source Performance Standards for the Smelting and Slag Processing Segments of the Ferroalloy Manufacturing Point Source Category" details the analysis undertaken in support of the regulations being proposed herein and is available for inspection in the EPA Information Center, Room 227, West Tower, Waterside Mall, Washington, D.C., at all EPA regional offices, and at State water pollution con-

trol offices. A supplementary analysis prepared for EPA of the possible economic effects of the proposed regulations is also available for inspection at these locations. Copies of both of these documents are being sent to persons or institutions affected by the proposed regulations, or who have placed themselves on a mailing list for this purpose (see EPA's Advance Notice of Public Review Procedures, 38 FR 21202, August 6, 1973). An additional limited number of copies of both reports are available. Persons wishing to obtain a copy may write the EPA Information Center, Environmental Protection Agency, Washington, D.C. 20460, Attention: Mr. Philip B. Wisman.

(c) *Summary of public participation.* Prior to this publication, the agencies and groups listed below were consulted and given an opportunity to participate in the development of the effluent limitations guidelines and standards proposed for the ferroalloy manufacturing category. All participating agencies have been informed of project developments. An initial draft of the Development Document was sent to all participants and comments were solicited on that report. The following are the principal agencies and groups consulted: (1) Effluent Standards and Water Quality Information Advisory Committee (established under section 515 of the Act); (2) All State and U.S. Territory Pollution Control Agencies; (3) Ohio River Valley Water Sanitation Commission; (4) New England Interstate Water Pollution Control Commission; (5) Hudson River Sloop Restoration, Inc.; (6) Conservation Foundation; (7) Businessmen for the Public Interest; (8) Environmental Defense Fund, Inc.; (9) Natural Resources Defense Council; (10) The American Society of Civil Engineers; (11) Water Pollution Control Federation; (12) National Wildlife Federation; (13) The American Society of Mechanical Engineers; (14) U.S. Department of Commerce; (15) Water Resources Council; (16) U.S. Department of the Interior; (17) U.S. Department of the Treasury; and (18) The Ferroalloys Association.

The following organizations responded with comments: Urban Carbide Corporation, Shieldalloy Corporation, Airco, Inc., Ohio Ferro-Alloy Corporation, Foote Mineral Company, Interlake, Inc., The Ferroalloys Association, the Commonwealth of Pennsylvania, Hawaii Department of Health, Maine Department of Environmental Protection, Texas Water Quality Board, Nebraska Department of Environmental Control, New York Department of Environmental Conservation, Florida Department of Pollution Control, Arizona Department of Health, Illinois Environmental Protection Agency, U.S. Department of the Interior, U.S. Department of Commerce, Colorado Department of Public Health, and United States Water Resources Council.

The primary issues raised in the development of the proposed effluent limitations guidelines and standards of performance and the treatment of these issues herein are as follows:

1. The requirement of dry dust collectors for new sources of open electric furnaces was questioned. It was contended that usage of certain raw materials (high in chlorides, fluorides or sulfur) would require the use of a scrubber for effective air pollution abatement. To the best of our knowledge these raw materials are not presently in use, and the proposed standard is valid. It should be recognized that this regulation will be reviewed by EPA at regular intervals, and at such times, it may be found to be no longer valid, based on conditions existing at that time.

2. It was contended that the contractor's recommended limitations and standards were restrictive as to product. The proposed limitations and standards now allow for production of any product.

3. It was requested that once-through noncontract cooling water be exempted from any limitations. Due to the large quantities of heat which can be discharged from this source, it is felt reasonable to limit such thermal pollution that is defined as a pollutant under section 502 of the Act.

4. It was requested that the limitations and standards take into account dissolved solids levels. Cited was one type of ore, which would result in K20 concentrations of 1,000 mg/l in one pass of the water through a scrubber. Although certain dissolved solids such as calcium and magnesium may present scaling problems, these can be controlled by softening or other procedures. One ferroalloy plant recirculates 97 percent of its scrubber waste water after treatment, the only blowdown being from the clarifier underflow. A blast furnace producing ferromanganese which was studied as part of the iron and steel industry study had a closed recycle system for gas scrubber water. Dissolved solids levels were 70,600 to 82,300 mg/l in the clarifier overflow, with potassium levels of 24,000 to 25,600 mg/l. If this blast furnace can operate successfully at those levels, the ferroalloy industry should have no probelms operating at levels less than half of those.

5. It was contended that the use of non-chromate water treatment chemicals, as suggested in the contractor's report, is not always feasible, due to differing water chemistries in the makeup water. This is a valid point, and an allowance has been made for the use of chromate or phosphate water treatment chemicals.

6. Included in the original contractor's report was a subcategory for the electrolytic production processes, and comments were received that the data base for this particular subcategory was insufficient for the promulgation of standards. It is agreed that this is a valid point, and this particular segment of the industry will be addressed at a later date, after further study.

7. Another point raised was that the discharge conditions could not be met, simply because of existing intake water quality conditions. Although some plants may have to discharge water containing lower concentrations of pollutants than their intake water, the present pollution levels in some waters are not sufficient reason to relax standards, which are based on technology and independent of intake conditions.

8. It was remarked that the process water recirculation suggested for Subpart C would not be possible without solids removal. The suggested technology did indeed call for removal of solids via a settling pond. However, this technology has been modified somewhat to allow for lack of land area, and clarifier-flocculators are now suggested, again with total recirculation of the overflow for 1983.

9. It was suggested that consideration be given to the possibility of "zero discharge" for Subpart A for the 1983 limitations. This was considered, and although it is technologically possible to convert from the use of a wet scrubber or precipitator to a dry baghouse, the cost of doing so is about twice the cost of the proposed 1983 limitations. Therefore, it was not deemed to be economically achievable to require such technology for 1983.

10. It was said that the costs as presented in the contractor's report did not appear to include all portions of a waste water treatment system, since they appeared to be low. Costs as presented in that report were as reported to EPA by the various plants surveyed. Costs as presented in the Development Document are based upon best engineering judgment and estimation, and although they may be subject to judgmental errors, they are believed to be essentially correct. Obviously, any small plant installing a waste water treatment system will have to pay a higher price, per unit of capacity, than a very large plant.

11. Some confusion was expressed as to where an exothermic smelting operation fits within the categorization as given. We believe that the Document now makes it clear, as do the proposed regulations, that it belongs in Subpart B.

12. Some comments were made regarding the use of mwhr as the production basis, rather than tonnage. Since electrical energy consumption is directly related to production (although the quantity required to produce a given tonnage varies from product to product), and is readily measured (and usually automatically recorded), it was deemed to be a valid basis for the guidelines and standards, and to be a simpler basis than tonnage. A comparison of the power consumption required per ton for various products is shown in Table 18 of the Development Document.

13. The suggested technologies in the contractor's report were questioned because of the possibility of nonavailability of land: The technologies as presently set forth minimize the required land areas, and where land may not be available at a particular plant, alternate technologies are suggested.

14. It was suggested that the building block approach may not be acceptable to certain states, since they are only interested in the final effluent. In line with this comment, another was raised regarding the use of a production rate basis, rather than a concentration basis.

The production rate basis eliminates the possibility of dilution to meet the limitations, as is possible with a concentration basis.

15. The point was raised that the contractor's recommended guidelines showed no chromium in the effluent (from noncontact cooling water), which is not a valid standard for ferroalloy plants producing ferrochromium. The commentor's attention is directed toward the definition of noncontact cooling water, as contained in Subpart D, which does not allow for the contact of cooling water and product. Therefore, no chromium or other metal (attributable to the product being smelted) should be contained in the noncontract cooling water discharge, although some chromium used for water treatment may be present.

16. It was suggested that the guidelines be issued as a range of numbers, rather than as a single number, so that the permit-issuing authorities will have the needed flexibility to deal with the real variations among existing plants, climates, and other factors. After consideration of this suggestion, it was rejected because: (1) Climate has no substantial effect upon the treatments specified (i.e., sedimentation should take place at about the same rate whether the temperature is 40° F or 80° F); (2) In the thermal limitations, the limitations are written as net numbers; and (3) Variation among existing plants has been taken into account with the categorization selected.

Interested persons may participate in this rulemaking by submitting written comments in triplicate to the EPA Information Center, Environmental Protection Agency, Washington, D.C. 20460, Attention: Mr. Philip B. Wisman. Comments on all aspects of the proposed regulations are solicited. In the event comments are in the nature of criticisms as to the adequacy of data which is available, or which may be relied upon by the Agency, comments should identify and, if possible, provide any additional data which may be available and should indicate why such data is essential to the development of the regulations. In the event comments address the approach taken by the agency in establishing an effluent limitation guideline or standard of performance, EPA solicits suggestions as to what alternative approach should be taken and why and how this alternative better satisfies the detailed requirements of sections 301, 304(b), 306 and 307 of the Act.

A copy of all public comments will be available for inspection and copying at the EPA Information Center, Room 227, West Tower, Waterside Mall, 401 M Street, SW., Washington, D.C. A copy of preliminary draft contractor reports, the Development Document and economic study referred to above and certain supplementary materials supporting the study of the industry concerned will also be maintained at this location for public review and copying. The EPA information regulation, 40 CFR Part 2, provides that a reasonable fee may be charged for copying.

All comments received on or before November 19, 1973, will be considered. Steps previously taken by the Environmental Protection Agency to facilitate public response within this time period are outlined in the advance notice concerning public review procedures published on August 6, 1973 (38 FR 21202).

Dated October 10, 1973.

JOHN QUARLES,
Acting Administrator.

PART 424—EFFLUENT LIMITATIONS GUIDELINES FOR EXISTING SOURCES AND STANDARDS OF PERFORMANCE AND PRETREATMENT STANDARDS FOR NEW SOURCES FOR THE FERROALLOY MANUFACTURING POINT SOURCE CATEGORY

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Subpart B—Covered Electric Furnaces and Other Smelting Operations With Wet Air Pollution Control Devices Subcategory

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Subpart A—Open Electric Furnaces With Wet Air Pollution Control Devices Subcategory

§ 424.10 Applicability; description of the open electric furnaces with wet air pollution control devices subcategory.

The provisions of this subpart are applicable to the smelting of ferroalloys in open electric furnaces with wet air pollution control devices. This subcategory includes those electric furnaces of such construction or configuration that the furnace off-gases are burned above the furnace charge level by air drawn into the system. After combustion the gases are cleaned in a wet air pollution control device, such as a scrubber, an electrostatic precipitator with water or other aqueous sprays, etc. The provisions of this subpart are not applicable to noncontact cooling water (regulated in Subpart D), nor to those electric furnaces which are covered, closed, sealed, or semicovered and wherein the furnace off-gases are not burned prior to collection (regulated in Subpart B).

§ 424.11 Specialized definitions.

For the purposes of this subpart:

(a) The term "process waste water" shall mean any water which during the maufacturing process comes into direct contact with any raw material, intermediate product, by-product, waste product or finished product (but not including slag, when such slag is subject to regulation under Subpart C) used in or resulting from the manufacture of ferroalloys and related products.

(b) The term "process waste water pollutants" shall mean pollutants contained in process waste waters.

(c) The term "oil" shall mean those components of a waste water amenable to measurement by the method described in "Methods for Chemical Analysis of Water and Wastes," 1971, Environmental Protection Agency, Analytical Quality Control Laboratory, page 217.

(d) The term "phenols" shall mean those components of a waste water amenable to measurement by the method described in "1972 Annual Book of ASTM Standards, Part 23," 1972, Standard D1783-70, page 445.

(e) The term "hexavalent chromium" shall mean those components of a waste water amenable to measurement by the

method described in "Standard Methods for the Examination of Water and Wastewater, 13th Edition," Method 211 (II) D, page 429.

(f) The following abbreviations shall have the following meaning: (i) "mwhr" shall mean megawatt-hour of electrical energy applied to the furnace (furnace power consumption), (ii) "kg" shall mean kilogram(s), (iii) "lb" shall mean pound(s) and (iv) "TSS" shall mean total suspended non-filterable solids.

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

(a) The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged after application of the best practicable control technology currently available by a point source subject to the provisions of this subpart:

Effluent Characteristic	*Effluent Limitation*
TSS	Maximum for any one day 0.319 kg/mwhr (0.703 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.160 kg/mwhr (0.352 lb/mwhr).
Chromium	Maximum for any one day 0.006 kg/mwhr (0.014 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.0032 kg/mwhr (0.007 lb/mwhr).
Hexavalent Chromium.	Maximum for any one day, 0.0006 kg/mwhr (0.0014 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.0002 kg/mwhr (0.0004 lb/mwhr).
Manganese	Maximum for any one day 0.064 kg/mwhr (0.141 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.032 kg/mwhr (0.070 lb/mwhr).
Oil	Maximum for any one day 0.064 kg/mwhr (0.141 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.045 kg/mwhr (0.098 lb/mwhr).
Phenols	Maximum for any one day 0.004 kg/mwhr (0.010 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.0032 kg/mwhr (0.007 lb/mwhr).
Ortho-phosphate.	Maximum for any one day 0.004 kg/mwhr (0.010 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.0002 kg/mwhr (0.005 lb/mwhr).
pH	Within the range of 6.0 to 9.0.

§ 424.13 Effluent limitations guidelines representing the degree of effluent reduction obtainable by the application of the best available technology economically achievable.

(a) The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged after application of the best available technology economically achievable by a point source subject to the provisions of this subpart:

Effluent characteristic	*Effluent limitation*
TSS	Maximum for any one day 0.024 kg/mwhr (0.052 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.012 kg/mwhr (0.026 lb/mwhr).
Chromium	Maximum for any one day 0.0008 kg/mwhr (0.0017 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.0004 kg/mwhr (0.0009 lb/mwhr).
Hexavalent Chromium.	Maximum for any one day 0.00006 kg/mwhr (0.00006 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.00001 kg/mwhr (0.00002 lb/mwhr).
Manganese	Maximum for any one day 0.008 kg/mwhr (0.017 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.0039 kg/mwhr (0.0086 lb/mwhr).
Oil	Maximum for any one day 0.008 kg/mwhr (0.017 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.0055 kg/mwhr (0.012 lb/mwhr).
Phenols	Maximum for any one day 0.0003 kg/mwhr (0.0007 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.0002 kg/mwhr (0.0003 lb/mwhr).
Ortho-phosphate.	Maximum for any one day 0.00002 kg/mwhr (0.00004 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.00003 kg/mwhr (0.00006 lb/mwhr).
pH	Within the range of 6.0 to 9.0.

§ 424.14 Standards of performance for new sources.

(a) The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged reflecting the greatest degree of effluent reduction achievable through application of the best available demonstrated control technology, processes, operating methods, or other alternatives, including, where practicable, a standard permitting no discharge of pollutants by a new point source subject to the provisions of this subpart: there shall be no discharge of process waste water pollutants to navigable waters.

§ 424.15 Pretreatment standards for new sources.

The pretreatment standards under section 307(c) of the Act, for a source within the open electric furnaces with wet air pollution control devices subcategory of the ferroalloy manufacturing category which is an industrial user of a publicly owned treatment works, (and which would be a new source subject to section 306 of the Act, if it were to discharge pollutants to navigable waters), shall be the standard set forth in Part 128, 40 CFR, except that for the purposes of this section, § 128.133, 40 CFR shall be amended to read as follows: "In addition to the prohibitions set forth in § 128.133, the pretreatment standard for incompatible pollutants introduced into a publicly owned treatment works by a major contributing industry shall be the standard of performance for new sources specified in § 424.14, 40 CFR, Part 424: *Provided,* That, if the publicly owned treatment works which receives the pollutants is committed, in its NPDES permit, to remove a specified percentage of any incompatible pollutant, the pretreatment standard applicable to users of such treatment works shall be correspondingly reduced for that pollutant."

Subpart B—Covered Electric Furnaces and Other Smelting Operations With Wet Air Pollution Control Devices Subcategory

§ 424.20 Applicability; description of the covered electric furnaces and other smelting operations with wet air pollution control devices subcategory.

The provisions of this subpart are applicable to covered electric furnaces or other smelting operations, not elsewhere included in this part, with wet air pollution control devices. This subcategory includes those electric furnaces of such construction or configuration (known as covered, closed, sealed, semi-covered or semi-closed furnaces) that the furnace off-gases are not burned prior to collection and cleaning, and which off-gases are cleaned after collection in a wet air pollution control device such as a scrubber, "wet" baghouse, etc. This subcategory also includes those nonelectric furnace smelting operations, such as exothermic (aluminothermic, etc.) smelting, ferromanganese refining, etc., where these are controlled for air pollution by wet air pollution control devices. This subcategory does not include noncontact cooling water (regulated in Subpart D) or those furnaces which utilize dry dust collection techniques, such as dry baghouses.

§ 424.21 Specialized definitions.

For the purposes of this subpart:

(a) The term "oil" shall mean those components of a waste water amenable to measurement by the method described in "Methods for Chemical Analysis of Water and Wastes," 1971, Environmental Protection Agency, Analytical Quality Control Laboratory, page 217.

(b) The term "total cyanide" shall mean cyanide amenable to measurement by the method described in "Methods for Chemical Analysis of Water and Wastes," 1971, Environmental Protection Agency, Analytical Quality Control Laboratory, page 41.

(c) The term "phenols" shall mean those components of a waste water amenable to measurement by the method described in "1972 Annual Book of ASTM Standards, Part 3," 1972, Standard D1783–70, page 445.

(d) The term "hexavalent chromium" shall mean those components of a waste water amendable to measurement by the method described in "Standard Methods for the Examination of Water and Wastewater, 13th Edition," Method 211 (II) D, page 429.

(e) The following abbreviations shall have the following meaning: (i) "mwhr" shall mean megawatt-hour of electrical energy applied to the furnace (furnace power consumption), (ii) "kg" shall mean kilogram(s), (iii) "kkg" shall mean 1000 kilograms, (iv) "lb" shall mean pound(s) and (v) "TSS" shall mean total suspended non-filterable solids.

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

(a) The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged after application of the best practicable control technology currently available by a point source subject to the provisions of this subpart:

Effluent characteristic	*Effluent limitation*
TSS	Maximum for any one day 0.419 kg/mwhr (0.922 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.209 kg/mwhr (0.461 lb/mwhr).
Chromium	Maximum for any one day 0.008 kg/mwhr (0.018 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.004 kg/mwhr (0.009 lb/mwhr.)
Hexavalent Chromium.	Maximum for any one day 0.0008 kg/mwhr (0.0018 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.003 kg/mwhr (0.0006 lb/mwhr.)
Total Cyanide	Maximum for any one day 0.004 kg/mwhr (0.009 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.002 kg/mwhr (0.005 lb/mwhr.)
Manganese	Maximum for any one day 0.084 kg/mwhr (0.184 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.042 kg/mwhr (0.092 lb/mwhr.)
Oil	Maximum for any one day 0.084 kg/mwhr (0.184 lb/mwhr.) Maximum average of daily values for any period of thirty consecutive days 0.059 kg/mwhr (0.129 lb/mwhr).
Phenols	Maximum for any one day 0.006 kg/mwhr (0.013 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.004 kg/mwhr (0.009 lb/mwhr.)
Orthophosphate.	Maximum for any one day 0.006 kg/mwhr (0.013 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.003 kg/mwhr (0.006 lb/mwhr.)
pH	Within the range of 6.0 to 9.0.

(b) For nonelectric furnace smelting processes, the units of the effluent limitations set forth in this section shall be read as "kg/kkg product (lb/ton product)", rather than "kg/mwhr (lb/mwhr)", and the limitations (except for pH) shall be three (3) times those listed in the table in this section.

§ 424.23 Effluent limitations guidelines representing the degree of effluent reduction obtainable by the application of the best available technology economically achievable.

(a) The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged after application of the best available technology economically achievable by a point source subject to the provisions of this subpart:

Effluent characteristic	*Effluent limitation*
TSS	Maximum for any one day 0.032 kg/mwhr (0.071 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.016 kg/mwhr (0.035 lb/mwhr).
Chromium	Maximum for any one day 0.001 kg/mwhr (0.002 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.0005 kg/mwhr (0.0012 lb/mwhr).
Hexavalent Chromium.	Maximum for any one day 0.00002 kg/mwhr (0.00005 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.00001 kg/mwhr (0.00002 lb/mwhr).
Total Cyanide.	Maximum for any one day 0.0005 kg/mwhr (0.001 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.0003 kg/mwhr (0.0006 lb/mwhr).
Manganese	Maximum for any one day 0.011 kg/mwhr (0.023 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.005 kg/mwhr (0.012 lb/mwhr).
Oil	Maximum for any one day 0.011 kg/mwhr (0.023 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.007 kg/mwhr (0.016 lb/mwhr).
Phenols	Maximum for any one day 0.0004 kg/mwhr (0.0009 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.0002 kg/mwhr (0.0005 lb/mwhr).
Orthophosphate.	Maximum for any one day 0.00007 kg/mwhr (0.0002 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.00004 kg/mwhr (0.00003 lb/mwhr).
pH	Within the range of 6.0 to 9.0.

(b) For nonelectric furnace smelting processes, the units of the effluent limitations set forth in this section shall be read as "kg/kkg product (lb/ton product)", rather than "kg/mwhr (lb/mwhr)", and the limitations (except for pH) shall be three (3) times those listed in the table in this section.

§ 424.24 Standards of performance for new sources.

(a) The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged reflecting the greatest degree of effluent reduction achievable through application of the best available demonstrated control technology, processes, operating methods, or other alternatives, including, where practicable, a standard permitting no discharge of pollutants by a new point source subject to the provisions of this subpart:

Effluent characteristic	*Effluent limitation*
TSS	Maximum for any one day 0.032 kg/mwhr (0.071 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.016 kg/mwhr (0.035 lb/mwhr).
Chromium	Maximum for any one day 0.001 kg/mwhr (0.002 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.0005 kg/mwhr (0.0012 lb/mwhr).
Hexavalent Chromium.	Maximum for any one day 0.00002 kg/mwhr (0.00005 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.00001 kg/mwhr (0.00002 lb/mwhr).

Effluent characteristic	*Effluent limitation*
Total Cyanide.	Maximum for any one day 0.0005 kg/mwhr (0.001 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.0003 kg/mwhr (0.0006 lb/mwhr).
Magnanese....	Maximum for any one day 0.011 kg/mwhr (0.023 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.005 kg/mwhr (0.012 lb/mwhr).
Oil.....	Maximum for any one day 0.011 kg/mwhr (0.023 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.007 kg/mwhr (0.016 lb/mwhr).
Phenols.....	Maximum for any one day 0.0004 kg/mwhr (0.0009 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.0002 kg/mwhr (0.0005 lb/mwhr).
Orthophosphate.	Maximum for any one day 0.00007 kg/mwhr (0.0002 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.00004 kg/mwhr (0.00008 lb/mwhr).
pH.....	Within the range of 6.0 to 9.0.

(b) For nonelectric furnace smelting processes, the units of the effluent limitations set forth in this section shall be read as "kg/kkg product (lb/ton product)", rather than "kg/mwhr (lb/mwhr)", and the limitations (except for pH) shall be three (3) times those listed in the table in this section.

§ 424.25 Pretreatment standards for new sources.

The pretreatment standards under section 307(c) of the Act, for a source within the covered electric furnaces or other smelting operations with wet air pollution control devices subcategory of the ferroalloy manufacturing category which is an industrial user of a publicly owned treatment works (and which would be a new source subject to section 306 of the Act, if it were to discharge pollutants to navigable waters), shall be the standard set forth in Part 128, 40 CFR, except that for the purposes of this section, § 128.133, 40 CFR, shall be amended to read as follows: "In addition to the prohibitions set forth in § 128.131, the pretreatment standard for incompatible pollutants, introduced into a publicly owned treatment works by a major contributing industry shall be the standard of performance for new sources specified in § 424.24, 40 CFR, Part 424: Provided, That, if the publicly owned treatment works which receives the pollutants is committed, in its NPDES permit, to remove a specified percentage of any incompatible pollutant, the pretreatment standard applicable to users of such treatment works shall be correspondingly reduced for that pollutant."

Subpart C—Slag Processing Subcategory

§ 424.30 Applicability; description of the slag processing subcategory.

The provisions of this subpart are applicable to slag processing, wherein (a) the residual metallic values in the furnace slag are recovered via concentration for return to the furnace, or (b) the slag is "shotted", for other further use.

§ 424.31 Specialized definitions.

For the purposes of this subpart:

(a) The term "process waste water" shall mean any water which during the manufacturing process comes into direct contact with any raw material, intermediate product, by-product, waste product or finished product used in or resulting from the manufacture of ferroalloys and related products.

(b) The term "process waste water pollutants" shall mean pollutants contained in process waste waters.

(c) The term "oil" shall mean those components of a waste water amenable to measurement by the method described in "Methods for Chemical Analysis of Water and Wastes," 1971, Environmental Protection Agency, Analytical Quality Control Laboratory, page 217.

(d) The following abbreviations shall have the following meaning: (i) "kg" shall mean kilogram(s), (ii) "kkg" shall mean 1000 kilograms, (iii) "lb" shall mean pound(s) and (iv) "TSS" shall mean total suspended non-filterable solids.

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

(a) The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged after application of the best practicable control technology currently available by a point source subject to the provisions of this subpart:

Effluent characteristic	*Effluent limitations*
TSS.....	Maximum for any one day 2.659 kg/kkg processed (5.319 lb/ton processed). Maximum average of daily values for any period of thirty consecutive days 1.330 kg/kkg processed (2.659 lb/ton processed).
Chromium....	Maximum for any one day 0.053 kg/kkg processed (0.106 lb/ton processed). Maximum average of daily values for any period of thirty consecutive days 0.026 kg/kkg processed (0.053 lb/ton processed).
Manganese....	Maximum for any one day 0.532 kg/kkg processed (1.064 lb/ton processed). Maximum average of daily values for any period of thirty consecutive days 0.266 kg/kkg processed (0.532 lb/ton processed).
Oil.....	Maximum for any one day 0.532 kg/kkg processed (1.064 b/ton processed). Maximum average of daily values for any period of thirty consecutive days 0.372 kg/kkg processed (0.745 lb/ton processed).
pH.....	Within the range of 6.0 to 9.0.

§ 424.33 Effluent limitations guidelines representing the degree of effluent reduction obtainable by the application of the best available technology economically achievable.

(a) The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged after application of the best available technology economically achievable by a point source subject to the provisions of this subpart: there shall be no discharge of process waste water pollutants to navigable waters.

§ 424.34 Standards of performance for new sources.

(a) The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged reflecting the greatest degree of effluent reduction achievable through application of the best available demonstrated control technology, processes, operating methods, or other alternatives, including, where practicable, a standard permitting no discharge of pollutants by a new point source subject to the provisions of this subpart: there shall be no discharge of waste water pollutants to navigable waters.

§ 424.35 Pretreatment standards for new sources.

The pretreatment standards under section 307(c) of the Act, for a source within the slag processing subcategory of the ferroalloy manufacturing category which is an industrial user of a publicly owned treatment works (and which would be a new source subject to section 306 of the Act, if it were to discharge pollutants to navigable waters), shall be the standard set forth in Part 128, 40 CFR, except that for the purposes of this section, § 128.133, 40 CFR, shall be amended to read as follows: "In addition to the prohibitions set forth in § 128.131, the pretreatment standard for incompatible pollutants introduced into a publicly owned treatment works by a major contributing industry shall be the standard of performance for new sources specified in § 424.34, 40 CFR, Part 424: Provided, That, if the publicly owned treatment works which receives the pollutants is committed, in its NPDES permit, to remove a specified percentage of any incompatible pollutant, the pretreatment standard applicable to users of such treatment works shall be correspondingly reduced for that pollutant."

Subpart D—Noncontract Cooling Water Subcategory

§ 424.40 Applicability; description of the noncontact cooling water subcategory.

The provisions of this subpart are applicable to all noncontact cooling water uses from ferroalloy electric smelting furnaces, both with and without wet air pollution control devices.

§ 424.41 Specialized definitions.

For the purposes of this subpart:

(a) The term "noncontact cooling water" shall mean water used for cooling, and which does not come into direct contact with any raw material, intermediate product, by-product, waste product or finished product.

(b) The term "heat content" shall mean the difference in heat of the noncontact cooling water discharge and the receiving water, as calculated by the following formula: $q=mc\ T/P$. In this formula q is the heat content in kg-cal/mwhr (BTU/mwhr); m is the mass flow rate of the noncontact cooling water discharge in kg/day (lb/day); c is the constant pressure heat capacity of the water in kg-cal/kg/°C (BTU/lb/°F); T is the difference in temperature between the noncontact cooling water discharge (before mixing with any other discharge stream) and the receiving water upstream of the thermal discharge in °C (°F); and P is the mwhr used in electric furnace production per day, in mwhr/day.

(c) The term "oil" shall mean those components of a waste water amenable to measurement by the method described in "Methods for Chemical Analysis of Water and Wastes," 1971, Environmental Protection Agency, Analytical Quality Control Laboratory, page 217.

(d) The term "hexavalent chromium" shall mean those components of a waste water amenable to measurement by the method described in "Standard Methods for the Examination of Water and Wastewater, 13th Edition," Method 211 (II) D, page 429.

(e) The following abbreviations shall have the following meaning: (i) "kg" shall mean kilogram(s), (ii) "lb" shall mean pound(s), (iii) "mwhr" shall mean megawatt-hour of electrical energy applied to the furnace (furnace power consumption), (iv) "kg-cal" shall mean kilogram-calories, (v) "BTU" shall mean British Thermal Unit(s), (vi) "°C" shall mean degrees Centigrade, (vii) "°F" shall mean degrees Fahrenheit and (viii) "TSS" shall mean total suspended nonfilterable solids.

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

(a) The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged after application of the best practicable control technology currently available by a point source subject to the provisions of this subpart:

Effluent characteristic	*Effluent limitation*
TSS	Maximum for any one day 2.686 kg/mwhr (5.917 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 1.343 kg/mwhr (2.959 lb/mwhr).
Chromium	Maximum for any one day 0.054 kg/mwhr (0.118 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.027 kg/mwhr (0.059 lb/mwhr).
Hexavalent Chromium.	Maximum for any one day 0.005 kg/mwhr (0.012 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.002 kg/mwhr (0.004 lb/mwhr).
Oil	Maximum for any one day 0.537 kg/mwhr (1.183 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.376 kg/mwhr (0.528 lb/mwhr).
Orthophosphate.	Maximum for any one day 0.107 kg/mwhr (0.237 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.054 kg/mwhr (0.118 lb/mwhr).
pH	Within the range of 6.0 to 9.0.
Heat Content.	Maximum for any one day 298,000 kg-cal/mwhr (1,184,000 BTU/mwhr). Maximum average of daily values for any period of thirty consecutive days 149,000 kg-cal/mwhr (592,000 BTU/mwhr).

§ 424.43 Effluent limitations guidelines representing the degree of effluent reduction obtainable by the application of the best available technology economically achievable.

(a) The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged after application of the best available technology economically achievable by a point source subject to the provisions of this subpart:

Effluent characteristic	*Effluent limitation*
TSS	Maximum for any one day 0.134 kg/mwhr (0.296 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.067 kg/mwhr (0.148 lb/mwhr).
Chromium	Maximum for any one day 0.003 kg/mwhr (0.006 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.001 kg/mwhr (0.003 lb/mwhr).
Hexavalent Chromium.	Maximum for any one day 0.00005 kg/mwhr (0.0001 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.00003 kg/mwhr (0.00006 lb/mwhr).
Oil	Maximum for any one day 0.027 kg/mwhr (0.059 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.019 kg/mwhr (0.041 lb/mwhr).
Orthophosphate.	Maximum for any one day 0.003 kg/mwhr (0.006 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.001 kg/mwhr (0.003 lb/mwhr).
pH	Within the range of 6.0 to 9.0.
Heat Content.	Maximum for any one day 14,900 kg-cal/mwhr (59,000 BTU/mwhr). Maximum average of daily values for any period of thirty consecutive days 7,500 kg-cal/mwhr (30,000 BTU/mwhr).

§ 424.44 Standards of performance for new sources.

(a) The following limitations constitute the quantity or quality of pollutants or pollutant properties which may be discharged reflecting the greatest degree of effluent reduction achievable through application of the best available demonstrated control technology, processes, operating methods, or other alternatives, including, where practicable, a standard permitting no discharge of pollutants by a new point source subject to the provisions of this subpart:

Effluent characteristic	*Effluent limitation*
TSS	Maximum for any one day 0.134 kg/mwhr (0.296 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.067 kg/mwhr (0.148 lb/mwhr).
Chromium	Maximum for any one day 0.003 kg/mwhr (0.006 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.001 kg/mwhr (0.003 lb/mwhr).
Hexavalent Chromium.	Maximum for any one day 0.00005 kg/mwhr (0.0001 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.00003 kg/mwhr (0.00006 lb/mwhr).
Oil	Maximum for any one day 0.027 kg/mwhr (0.059 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.019 kg/mwhr (0.041 lb/mwhr).

Effluent characteristic	*Effluent limitation*
Orthophosphate.	Maximum for any one day 0.003 kg/mwhr (0.006 lb/mwhr). Maximum average of daily values for any period of thirty consecutive days 0.001 kg/mwhr (0.003 lb/mwhr).
pH	Within the range of 6.0 to 9.0.
Heat Content.	Maximum for any one day 14,900 kg-cal/mwhr (59,000 BTU/mwhr). Maximum average of daily values for any period of thirty consecutive days 7,500 kg-cal/mwhr (30,000 BTU/mwhr).

§ 424.45 Pretreatment standards for new sources.

The pretreatment standards under section 307(c) of the Act, for a source within the noncontact cooling water subcategory of the ferroalloy manufacturing category which is an industrial user of a publicly owned treatment works (and which would be a new source subject to section 306 of the act, if it were to discharge pollutants to navigable waters), shall be the standard set forth in Part 128, 40 CF, except that for the purposes of this section, § 128.133, 40 CFR shall be amended to read as follows: "In addition to the prohibitions set forth in section 128.131, the pretreatment standard for incompatible pollutants introduced into a publicly owned treatment works by a major contributing industry shall be the standard of performance for new sources specified in § 424.44, 40 CFR, Part 424: *Provided,* That, if the publicly owned treatment works which receives the pollutants is committed, in its NPDES permit, to remove a specified percentage of any incompatible pollutant, the pretreatment standard applicable to users of such treatment works shall be correspondingly reduced for that pollutant."

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