

PROPOSED RULES

ENVIRONMENTAL PROTECTION AGENCY

[40 CFR Part 406]

EFFLUENT LIMITATIONS GUIDELINES FOR EXISTING SOURCES AND STANDARDS OF PERFORMANCE AND PRETREATMENT STANDARDS FOR NEW SOURCES

Grain Mills Point Source Category

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 corn wet milling subcategory (Subpart A), the corn dry milling subcategory (Subpart B), the normal wheat flour milling subcategory (Subpart C), the bulgur wheat flour milling subcategory (Subpart D), the normal rice milling subcategory (Subpart E), and the parboiled rice processing subcategory (Subpart F), of the grain mills 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.; Pub. L. 92-500) (the "Act").

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

Section 304(b) of the Act requires the Administrator to publish regulations providing guidelines for effluent limitations setting forth the degree of effluent reduction attainable through the application of the best practicable control technology currently available and the degree of effluent reduction attainable through the application of the best control measures and practices achievable including treatment techniques, process and 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 corn wet milling subcategory (Subpart A), the corn dry milling subcategory (Subpart B), the normal wheat flour milling subcategory (Subpart C), the bulgur wheat flour milling subcategory (Subpart D), the normal rice milling subcategory (Subpart E), and the parboiled rice proc-

essing subcategory (Subpart F), of the grain mills 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 grain mills manufacturing category. The regulations proposed herein set forth the standards of performance applicable to new sources for the corn wet milling subcategory (Subpart A), the corn dry milling subcategory (Subpart B), the normal wheat flour milling subcategory (Subpart C), the bulgur wheat flour milling subcategory (Subpart D), the normal rice milling subcategory (Subpart E), and the parboiled rice processing subcategory (Subpart F), of the grain mills 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 406.15, 406.25, 406.35, 406.45, 406.55, and 406.65, proposed below provide pretreatment standards for new sources within the corn wet milling subcategory (Subpart A), the corn dry milling subcategory (Subpart B), the normal wheat flour milling subcategory (Subpart C), the bulgur wheat flour milling subcategory (Subpart D), the normal rice milling subcategory (Subpart E), and the parboiled rice processing subcategory (Subpart F), of the grain mills 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.

(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 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 nonwater-quality environmental impact, such as the effects of the application of such technologies upon other pollution problems, including air, solid waste, noise and radiation, 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, nonwater-quality environmental impact (including energy requirements) and other factors.

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

The pretreatment standards proposed herein are intended to be complementary to the pretreatment standards proposed for existing sources under Part 128 of this Title. The basis for such standards

is 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 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, §§ 406.15, 406.25, 406.35, 406.45, 406.55, and 406.65 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 corn wet milling subcategory (Subpart A), the corn dry milling subcategory (Subpart B), the normal wheat flour milling subcategory (Subpart C), the bulgur wheat flour milling subcategory (Subpart D), the normal rice milling subcategory (Subpart E), and the parboiled rice processing subcategory (Subpart F), of the grain mills category.

(i) *Categorization.* For the purpose of establishing effluent limitations guidelines and standards of performance, the grain mills category was subcategorized into: Corn wet milling, corn dry milling, normal wheat flour milling, bulgur wheat flour milling, normal rice milling, and parboiled rice processing. Two factors namely raw materials and production processes, provided a basis for subcategorization. Factors such as age, size of plant, waste characteristics and waste control technologies were considered not to justify further segmentation of the industry.

(1) Subpart A—Corn Wet Milling Subcategory: Corn wet milling has the most complex operations of any of the grain milling subcategories. The processing begins with dry cleaning of the shelled corn, followed by softening of the kernels in the steeping process, and then wet milling. The latter operation separates the germ, starch, gluten and hulls. Further wet processing may be used to produce corn oil, regular and modified starches, corn syrup, dextrose and animal feed.

(2) Subpart B—Corn Dry Milling Subcategory: Corn dry milling differs in almost all respects from wet milling except in the raw materials used. After the corn is washed only dry processes are used to produce the final products: corn meal, grits, flour, oil and animal feed.

(3) Subpart C—Normal Wheat Flour Milling Subcategory: Preparation of wheat into ground flour or granular products is fundamentally a dry milling process, which distinguishes it from the production of bulgur flour. After cleaning with water or air, moisture is added in a tempering process with no water discharged, followed by dry milling. This

process separates the germ and bran from the flour.

(4) Subpart D—Bulgur Wheat Flour Milling Subcategory: Bulgur production differs from normal wheat flour milling in that the wheat is parboiled, and dried before milling.

(5) Subpart E—Normal Rice Milling Subcategory: Milling of rice differs from other cereal milling in that the product is the whole grain rather than flour or meal. Rough rice is first cleaned and then milled to remove hulls, bran and germ. The polished rice is then enriched with vitamins and minerals before packaging. Rice hulls, bran, polish and small pieces of the grain may be sold separately or combined into so called mill-feed for animals.

(6) Subpart F—Parboiled Rice Processing Subcategory: The production of parboiled rice differs from normal rice milling only in the soaking and cooking operations known as parboiling.

(ii) *Waste Characteristics.* The significant pollutant parameters contained in waste waters resulting from the milling and processing of grain are BOD₅, total suspended nonfilterable solids, and pH. These parameters, if controlled to the extent described in these proposed regulations, will adequately control the major organic and inorganic pollutants. Other pollutants which are discharged by grain mills are dissolved solids, nitrogen, phosphorus and temperature. The nutrients are present in concentrations equal to or less than that found in municipal waste waters. Moderate amounts of dissolved solids are present in corn wet milling wastes. As for temperature, process waste waters, when treated, require either cooling before treatment or are normally cooled by aeration during treatment.

(iii) *Origin of waste water pollutants in the grain processing subcategories.* (1) Subpart A—Corn Wet Milling Subcategory: Corn wet milling uses more water and generates more waste water than any other grain milling process. The major waste contributions are: Condensates from steepwater evaporation, cooling water from once-through barometric condensers, waste water from modified starch production, and waste water from activated carbon and ion exchange and evaporation of syrup in the syrup refining operation. Raw waste waters discharged from wet corn milling plants range from 0.75 to 30 mgd. The average amount of BOD₅ in these discharges is 415 lbs/MSBu.

(2) Subpart B—Corn Dry Milling Subcategory: The waste waters generated in this subcategory are from the washing of corn and car washing. The wash water is normally screened or settled to recover solids for feed, and then it is discharged from the plant. Most corn dry mills discharge to municipal systems. The maximum discharge from corn dry milling plants is about 0.24 mgd. The raw waste water BOD₅ values are about 60 lbs/MSBu.

(3) Subpart C—Normal Wheat Flour Milling Subcategory: Of the more than two hundred plants in this subcategory,

only a few are cleaning with water. Ordinarily there is no process waste water generated.

(4) Subpart D—Bulgur Wheat Flour Milling Subcategory: The few bulgur wheat mills in the United States generate small quantities of waste water (.01 to .03 mgd) and all of them discharge to municipal systems. The waste waters contain only moderately high BOD₅ and suspended solids which result from the steaming and cooking operations.

(5) Subpart E—Normal Rice Milling Subcategory: Normal rice milling is a dry process and does not generate waste water.

(6) Subpart F—Parboiled Rice Processing Subcategory: Parboiled rice production involves dry cleaning of the rice, steeping, cooling, drying, cooling, and finally milling. Waste waters are generated in small amounts (0.1 mgd) from the steeping, cooling and drying operations, and the waste may be characterized as having a high soluble BOD₅ and low suspended solids level. The average BOD₅ loading is 0.18 lbs/cwt.

(iv) *Treatment and control technology techniques.* Treatment techniques for grain milling wastes are tried and proven biological treatment systems. Bulking problems have existed in the past with some of these high strength wastes due to surges in both strength and volumes of process waste waters, and changes in product mix and pH. With proper design of equalization basins, aeration tanks, in plant control, etc., bulking problems should be greatly minimized.

(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 (a) the best practicable control technology currently available, (b) the best available technology economically achievable, and (c) the best available demonstrated control technology, processes, operating methods or other alternatives.

(1) Treatment in corn wet milling subcategory: The best practicable control technology currently available involves a combination of in-plant changes and end-of-pipe treatment. Discharge of once-through barometric cooling water should be eliminated by recirculating over cooling towers or by replacing the barometric condensers with surface condensers. If cooling towers are used, the blowdown should be sent to the treatment system. In the case of surface condensers, the condensate should be treated. To reduce carry over of organics in evaporators, modern entrainment separators should be installed in steepwater and syrup evaporators. Treatment of process waste waters should include equalization, neutralization, biological treatment and solids separation.

The requirements for the best available technology economically achievable include increased water reuse at all plants over and above the current practice, improved solids recovery at individual waste sources, and deep bed filtration of treated waste water for additional solids removal.

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New source performance standards are the same as for the best available technology economically achievable.

(2) Treatment in corn dry milling subcategory: The best practicable control technology currently available for the corn dry milling subcategory is essentially biological treatment followed by solids separation. Little can be done to reduce the waste load in-plant since the waste water is generated almost exclusively in corn washing. Car washing waters should be piped to the treatment system.

Solids separation represents the addition that must be made to the best practicable control technology currently available to meet the requirements of best available technology economically achievable.

The new source performance standards require the same level of technology as the best available technology economically achievable.

(3) Treatment in normal wheat flour milling subcategory: The best practicable control technology currently available for normal wheat milling is no discharge of process waste water pollutants to navigable waters. Where wet cleaning methods are used, dry cleaning of grain can be instituted.

Best available technology economically achievable and new source performance standards also involve no discharge of process waste water pollutants to navigable waters.

(4) Treatment in bulgur wheat flour milling subcategory: For bulgur wheat flour milling the best practicable control technology currently available is biological treatment comparable to activated sludge followed by solids separation.

Best available technology economically achievable may be obtained by addition of solids filtration to the best practicable control technology currently available. This level of treatment will also meet the new source performance standards.

(5) Treatment in normal rice milling subcategory: The best practicable control technology currently available for normal rice milling is no discharge of process waste water pollutants to navigable waters.

Best available technology economically achievable and new source performance standards also involve no discharge of process waste water pollutants to navigable waters.

(6) Treatment in parboiled rice processing subcategory: The best practicable control technology currently available in parboiled rice processing is biological treatment comparable to activated sludge followed by solids separation.

Best available technology economically achievable and new source performance standards may be obtained by addition of solids filtration to best practicable technology currently available.

(vi) *Cost and energy requirements.* The cost and energy requirements of the recommended technologies have been investigated. In the corn wet milling subcategory, the investment costs for a typical size plant (60,000 standard bushels/day) are \$2,544,000 exclusive of land cost

for the best practicable control technology currently available. Since only four wet corn mills are affected and they all have treatment installations in place, the added costs to meet the limitations will be less than the cost quoted in each case. One of these mills presently meets the effluent level achievable by application of the best practicable control technology currently available.

The power requirements for the application of the best practicable control technology currently available for a medium sized corn wet mill plant are estimated to be 450kw (600 hp).

The investment costs of the recommended best practicable control technology currently available for a typical plant in each of the other subcategories are as follows:

Corn dry milling.....	\$291,000
Bulgur wheat flour.....	24,000
Parboiled rice.....	313,000

No significant energy requirements are involved. The investment cost of applying the recommended best available technology economically achievable for a typical plant in each of the subcategories is shown below:

These costs include those for applying the best practicable control technology currently available.

Corn wet milling.....	\$2,832,000
Corn dry milling.....	323,000
Bulgur wheat flour.....	93,000
Parboiled rice.....	342,000

No significant additional energy requirements over the best practicable control technology currently available will be necessary to apply the best available technology economically achievable.

(vii) *Establishing daily maximum limitations.* The daily maximum limitations for the effluent characteristics for each subcategory with allowable discharges are 3.0 times the 30-day limitations. These limitations take into account the variability of raw waste loads and resultant effluents in the grain mills category. They were based on an analysis of the data gathered during the preparation of the Development Document.

(viii) *Nonwater quality environmental impact.* The principal nonwater quality environmental impact attributable to the control and treatment technologies proposed is disposal as a solid waste of the sludge generated from the biological treatment systems. Several avenues are available for the disposal of these solids including digestion and landfill, incineration, and other conventional methods for handling biological solids. Corn wet milling generates the greatest amounts of sludge of any of the subcategories. It is known that several plants return these solids to the process stream, presumably for animal feed. Several methods for accomplishing this can be suggested including centrifugation, vacuum filtration, and direct addition to evaporators.

(ix) *Economic impact analysis.* A study conducted by EPA has concluded that although there could be pressure on prices in one subcategory of the grain mills point source category of nearly 2.0

percent, plant closures attributable to the suggested guidelines appear improbable. As a result, employment and community impacts are minimal. No balance of trade problems exist.

Of all the subcategories, corn wet milling is the most affected by the recommended effluent standards. Only 5 of 17 existing plants currently discharge directly to surface waters. One of these will be discharging to a municipal system in the near future. The other 4 plants represent 23 percent of industry capacity. These plants may increase prices 1.2-1.9 percent to cover pollution controls. However, due to the competitiveness of the industry, the few firms who must treat their own wastes will probably have difficulty passing on their costs fully. The final effect may be a mild curtailment of industry growth.

The report entitled "Development Document for Proposed Effluent Limitations Guidelines and New Source Performance Standards for the Grain Processing Segment of the Grain Mills 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 control 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. Phillip 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 effluent limitations guidelines and standards proposed for the grain mills 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) New England Interstate Water Pollution Control Commission; (4) Ohio River Valley Sanitation Commission; (5) Delaware River Basin Commission; (6) American Society of Mechanical Engineers; (7) American Society of Chemical Engineers; (8) Hudson River Sloop Restoration, Inc.; (9) Conservation Foundation; (10) Environmental Defense Fund; (11) Natural Resources Defense Council;

(12) Water Pollution Control Federation; (13) National Wildlife Federation; (14) U.S. Department of Commerce; (15) U.S. Department of Interior; (16) Water Resources Council; (17) U.S. Department of Agriculture; (18) U.S. Department of Health, Education, and Welfare; (19) Corn Refiners Association, Inc.; (20) American Corn Millers Federation; (21) Rice Millers Association; (22) Miller's National Federation; (23) National Soft Wheat Millers Association; and (24) Protein Cereal Products Institute.

The following organizations responded with comments: Effluent Standards and Water Quality Information Advisory Committee; U.S. Department of the Interior; American Corn Millers Federation; Corn Refiners Association, Inc.; California Water Resources Control Board; Delaware River Basin Commission; Water Pollution Control Federation; Texas Water Quality Board; U.S. Department of Agriculture; State of North Carolina, Department of Natural and Economic Resources; U.S. Department of Commerce; U.S. Department of Health, Education, and Welfare; State of Illinois; and the New York State Department of Environmental Conservation.

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

1. A major objection to the guidelines as recommended in the Development Document was the supposed implication that the pollutant limitations represent maximum allowable discharge limits. In addition, the setting of pollutant limitations without regard to the inherent variability of raw waste loads from this industry was also criticized. The limitations as recommended in the draft report to EPA were intended to be the average maximum of any thirty consecutive days, and are so stated in the proposed regulations. As recognized in the Development Document, variability in effluent concentrations is due to variations in raw waste load (especially shock loads) and changes in raw waste composition, as well as poor operation and design of treatment facilities. A number of recommendations are made in the report to minimize upsets caused by the above factors. However, in view of the inherent variability of wastes in this industry, the proposed regulations allow a daily maximum of three times the monthly average. This limitation is attainable and realistic based on the data available.

2. Industry was concerned that no allowance would be made for auxiliary wastes when applying these regulations. The regulations as proposed only pertain to process waste waters, and should not be construed as limiting auxiliary waste waters. Guidelines will be set at a later date for such wastes.

3. Extensive comments were made as regards the cost information. One industry comment contained detailed costs apparently much higher than the estimates

in the Development Document. If the latter cost figures based on 1971 dollars are adjusted to present costs, the investment cost is only 11 percent less than the industry estimate. This difference is mainly due to the costs of in-plant controls. Cost estimates for in-plant controls were not included for the hypothetical plant used in the Development Document. This plant was assumed to have good in-plant control practices, a situation which exists at many grain mills.

4. Other comments questioned the applicability of deep bed filtration to treated wastes from corn wet mills. It is true that this technique for removing suspended solids after biological treatment is not in wide use. However, there is no evidence that it cannot be applied to the grain milling industry. With the in-plant controls and treatment suggested in the Development Document for 1983, upsets in the biological system will be minimized allowing application of the deep bed filtration technique. It should be noted that at least one corn wet mill is presently installing a biological system with deep bed filtration and has apparently concluded that such a system is indeed workable.

5. Comments have been received to the effect that use of a range of effluent values in the corn wet milling and corn dry milling point source subcategories of the grain milling category is necessary to enable the permit-issuing authority to give adequate recognition to the various considerations set forth in section 304(b) of the Act. Comments have also been received questioning whether the treatment system proposed as best practicable control technology currently available can in fact consistently comply with the proposed 30 day average and maximum daily effluent limitations.

We specifically request comments and data on these points; and if alternatives to this regulation are offered (in accordance with the above request), we further request full background data and documentation to enable the Environmental Protection Agency to make a further judgment on the alternatives.

In addition during the public comment period for these guidelines we would appreciate further information on the potential economic impact on this industry. We would specifically like to receive more data pertinent to: (a) The number of plants and plant size, by type of plant; (b) revenues; (c) investment expenditures; (e) in-plant modification costs; (f) whether discharge is to a municipal system or to surface water; and (g) land requirements and availability of land for installation of waste treatment facilities.

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. Phillip 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 January 4, 1974 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 November 21, 1973.

JOHN QUARLES,
Acting Administrator.

PART 406—EFFLUENT LIMITATIONS GUIDELINES FOR EXISTING SOURCES AND STANDARDS OF PERFORMANCE AND PRETREATMENT STANDARDS FOR NEW SOURCES FOR THE GRAIN MILLS POINT SOURCE CATEGORY

Subpart A—Corn Wet Milling Subcategory

Sec.

- 406.10 Applicability; description of corn wet milling subcategory.
- 406.11 Specialized definitions.
- 406.12 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.
- 406.13 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.
- 406.14 Standards of performance for new sources.
- 406.15 Pretreatment standards for new sources.

Subpart B—Corn Dry Milling Subcategory

Sec.

- 406.20 Applicability; description of corn dry milling subcategory.
- 406.21 Specialized definitions.
- 406.22 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

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Sec.		<i>Effluent characteristics</i>	<i>Effluent Limitations</i>	
406.23	Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.	BOD5-----	Maximum for any one day 1.08 kg/kg of corn (60.0 lb/MSBu)	
406.24	Standards of performance for new sources.	TSS-----	Maximum average of daily values for any period of thirty consecutive days 0.36 kg/kg of corn (20.0 lb/MSBu)	
406.25	Pretreatment standards for new sources.	pH-----	Maximum for any one day 0.54 kg/kg of corn (30.0 lb/MSBu)	
	Subpart C—Normal Wheat Flour Milling Subcategory		Maximum average of daily values for any period of thirty consecutive days 0.18 kg/kg of corn (10.0 lb/MSBu)	
Sec.			Within the range of 6.0 to 9.	
406.30	Applicability; description of normal wheat flour milling subcategory.		§ 406.14 Standards of performance for new sources.	
406.31	Specialized definitions.		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:	
406.32	Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.	(a) The term "corn" shall mean the shelled corn delivered to a plant before processing.	<i>Effluent characteristics</i>	<i>Effluent Limitations</i>
406.33	Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.	(b) The term "standard bushel" shall mean a bushel of shelled corn weighing 56 pounds.	BOD5-----	Maximum for any one day 1.08 kg/kg of corn (60.0 lb/MSBu)
406.34	Standards of performance for new sources.	(c) The following abbreviations shall have the following meanings: (1) "BOD5" shall mean five day biochemical oxygen demand; (2) "TSS" shall mean total suspended nonfilterable solids; (3) "kg" shall mean kilogram(s); (4) "kkg" shall mean 1000 kilograms; (5) "lb" shall mean pound(s); and (6) "MSBu" shall mean 1000 standard bushels.	TSS-----	Maximum average of daily values for any period of thirty consecutive days 0.36 kg/kg of corn (20.0 lb/MSBu)
406.35	Pretreatment standards for new sources.	§ 406.12 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.	pH-----	Maximum for any one day 0.54 kg/kg of corn (30.0 lb/MSBu)
	Subpart D—Bulgur Wheat Flour Milling Subcategory	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:		Maximum average of daily values for any period of thirty consecutive days 0.18 kg/kg of corn (10.0 lb/MSBu)
Sec.				Within the range of 6.0 to 9.0
406.40	Applicability; description of bulgur wheat flour milling subcategory.	§ 406.15 Pretreatment standards for new sources.		
406.41	Specialized definitions.	The pretreatment standards under section 307(c) of the Act, for a source within the corn wet milling subcategory 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 of this title, except that for the purposes of this section, § 128.133 of this title shall be amended to read as follows: "In addition to the prohibitions set forth in § 128.131 of this title, 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 § 406.14. 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,		
406.42	Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.			
406.43	Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.			
406.44	Standards of performance for new sources.			
406.45	Pretreatment standards for new sources.			
	Subpart E—Normal Rice Milling Subcategory			
Sec.				
406.50	Applicability; description of normal rice milling subcategory.			
406.51	Specialized definitions.			
406.52	Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.	<i>Effluent characteristics</i>	<i>Effluent Limitations</i>	
406.53	Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.	BOD5-----	Maximum for any one day 2.67 kg/kg of corn (150 lb/MSBu)	
406.54	Standards of performance for new sources.	TSS-----	Maximum average of daily values for any period of thirty consecutive days 0.89 kg/kg of corn (50.0 lb/MSBu)	
406.55	Pretreatment standards for new sources.	pH-----	Maximum for any one day 1.86 kg/kg of corn (105 lb/MSBu)	
	Subpart F—Parboiled Rice Processing Subcategory			
Sec.				
406.60	Applicability; description of parboiled rice processing subcategory.			
406.61	Specialized definitions.			
406.62	Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.			
406.63	Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.			

the pretreatment standard applicable to users of such treatment works shall be correspondingly reduced for that pollutant."

Subpart B—Corn Dry Milling Subcategory

§ 406.20 Applicability; description of corn dry milling subcategory.

The provisions of this subpart are applicable to discharges resulting from the process in which shelled corn is washed and subsequently milled by dry processes into such products as corn meal, grits, flour, oil and animal feed.

§ 406.21 Specialized definitions.

For the purposes of this subpart:

(a) The term "corn" shall mean the shelled corn delivered to a plant before processing.

(b) The term "standard bushel" shall mean a bushel of shelled corn weighing 56 pounds.

(c) The following abbreviations shall have the following meanings: (1) "BOD₅" shall mean five day biochemical oxygen demand; (2) "TSS" shall mean total suspended nonfilterable solids; (3) "kg" shall mean kilogram(s); (4) "kkg" shall mean 1000 kilograms; (5) "lb" shall mean pound(s); and (6) "MSBu" shall mean 1000 standard bushels.

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

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:

<i>Effluent characteristic</i>	<i>Effluent limitation</i>
BOD ₅	Maximum for any one day 0.21 kg/kkg of corn (12.0 lb/MSBu) Maximum average of daily values for any period of thirty consecutive days 0.071 kg/kkg of corn (4.0 lb/MSBu)
TSS	Maximum for any one day 0.18 kg/kkg of corn (10.5 lb/MSBu) Maximum average of daily values for any period of thirty consecutive days 0.062 kg/kkg of corn (3.5 lb/MSBu)
pH	Within the range of 6.0 to 9.0

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

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:

<i>Effluent characteristics</i>	<i>Effluent limitations</i>
BOD ₅	Maximum for any one day 0.11 kg/kkg of corn (6.0 lb/MSBu) Maximum average of daily values for any period of thirty consecutive days 0.036 kg/kkg of corn (2.0 lb/MSBu)
TSS	Maximum for any one day 0.054 kg/kkg of corn (3.0 lb/MSBu) Maximum average of daily values for any period of thirty consecutive days 0.018 kg/kkg of corn (1.0 lb/MSBu)
pH	Within the range of 6.0 to 9.0

§ 406.24 Standards of performance for new sources.

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:

<i>Effluent characteristics</i>	<i>Effluent limitations</i>
BOD ₅	Maximum for any one day 0.10 kg/kkg of corn (6.0 lb/MSBu) Maximum average of daily values for any period of thirty consecutive days 0.036 kg/kkg of corn (2.0 lb/MSBu)
TSS	Maximum for any one day 0.054 kg/kkg of corn (3.0 lb/MSBu) Maximum average of daily values for any period of thirty consecutive days 0.018 kg/kkg of corn (1.0 lb/MSBu)
pH	Within the range of 6.0 to 9.0

§ 406.25 Pretreatment standards for new sources.

The pretreatment standards under section 307(c) of the Act, for a source within the corn dry milling subcategory 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 of this title, except that for the purposes of this section, § 128.133 of this title shall be amended to read as follows: "In addition to the prohibitions set forth in § 128.131 of this title, 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 § 406.24: *Provided*, That, if the publicly owned treatment works which receives the pollutants is committed, in its NPDES permit, to re-

move 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—Normal Wheat Flour Milling Subcategory

§ 406.30 Applicability; description of normal wheat flour milling subcategory.

The provisions of this subpart are applicable to discharges resulting from the processes in which wheat and other grains are milled by dry processes into flour and millfeed.

§ 406.31 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 or product used in or resulting from normal wheat flour milling.

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

(c) The term "wheat" shall mean wheat delivered to a plant before processing.

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

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: No discharge of process waste water pollutants to navigable waters.

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

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: No discharge of process waste water pollutants to navigable waters.

§ 406.34 Standards of performance for new sources.

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: No discharge of

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process waste water pollutants to navigable waters.

§ 406.35 Pretreatment standards for new sources.

The pretreatment standards under section 307(c) of the Act, for a source within the normal wheat flour milling subcategory 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 of this title, except that for the purposes of this section, § 128.133 of this title shall be amended to read as follows: "In addition to the prohibitions set forth in § 128.131 of this title 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 § 406.34, *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—Bulgur Wheat Flour Milling Subcategory

§ 406.40 Applicability; description of bulgur wheat flour milling subcategory.

The provisions of this subpart are applicable to discharges resulting from the process in which wheat is parboiled, dried, and partially debranned in the production of bulgur.

§ 406.41 Specialized definitions.

For the purposes of this subpart:

(a) The term "wheat" shall mean wheat delivered to a plant before processing.

(b) The term "standard bushel" shall mean a bushel of wheat weighing 60 pounds.

(c) The following abbreviations shall have the following meanings: (1) "BOD₅" shall mean five day biochemical oxygen demand; (2) "TSS" shall mean total suspended nonfilterable solids; (3) "kg" shall mean kilogram(s); (4) "kkg" shall mean 1000 kilograms; (5) "lb" shall mean pound(s); and (6) "MSBu" shall mean 1000 standard bushels.

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

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:

<i>Effluent characteristic</i>	<i>Effluent limitation</i>	<i>Effluent characteristic</i>	<i>Effluent limitation</i>
BOD ₅	Maximum for any one day 0.025 kg/kkg of wheat (1.50 lb/MSBu)	TSS	Maximum for any one day 0.0099 kg/kkg of wheat (0.60 lb/MSBu).
TSS	Maximum average of daily values for any period of thirty consecutive days 0.0083 kg/kkg of wheat (0.50 lb/MSBu)		Maximum average of daily values for any period of thirty consecutive days 0.0033 kg/kkg of wheat (0.20 lb/MSBu).
pH	Maximum for any one day 0.025 kg/kkg of wheat (1.50 lb/MSBu)	pH	Within the range of 6.0 to 9.0.

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

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:

<i>Effluent characteristics</i>	<i>Effluent limitation</i>
BOD ₅	Maximum for any one day 0.015 kg/kkg of wheat (0.90 lb/MSBu).
TSS	Maximum average of daily values for any period of thirty consecutive days 0.0050 kg/kkg of wheat (0.30 lb/MSBu).
pH	Maximum for any one day 0.0099 kg/kkg of wheat (0.60 lb/MSBu).

§ 406.44 Standards of performance for new sources.

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:

<i>Effluent characteristic</i>	<i>Effluent limitation</i>
BOD ₅	Maximum for any one day 0.015 kg/kkg of wheat (0.90 lb/MSBu).
	Maximum average of daily values for any period of thirty consecutive days 0.0050 kg/kkg of wheat (0.30 lb/MSBu).

§ 406.45 Pretreatment standards for new sources.

The pretreatment standards under section 307(c) of the Act, for a source within the bulgur wheat flour milling subcategory 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 of this title except that for the purposes of this section, § 128.133 of this title shall be amended to read as follows: "In addition to the prohibitions set forth in § 128.131 of this title, 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 § 406.44, *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 E—Normal Rice Milling Subcategory

§ 406.50 Applicability; description of normal rice milling subcategory.

The provisions of this subpart are applicable to discharges resulting from the process in which rice is cleaned and milled by dry processes.

§ 406.51 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 or product used in or resulting from normal rice milling.

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

(c) The term "rice" shall mean the rice delivered to a plant before processing.

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

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: No discharge of process waste water pollutants to navigable waters.

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

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: No discharge of process waste water pollutants to navigable waters.

§ 406.54 Standards of performance for new sources.

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: No discharge of process waste water pollutants to navigable waters.

§ 406.55 Pretreatment standards for new sources.

The pretreatment standards under section 307(c) of the Act, for a source within the normal rice milling subcategory 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 of this title except that for the purposes of this section, § 128.133 of this title shall be amended to read as follows: "In addition to the prohibitions set forth in § 128.131 of this title 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 § 406.54, 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 F—Parboiled Rice Processing Subcategory

§ 406.60 Applicability; description of parboiled rice processing subcategory.

The provisions of this subpart are applicable to discharges resulting from the

process in which rice is cleaned, cooked and dried before being milled.

§ 406.61 Specialized definitions.

For the purposes of this subpart:

(a) The term "rice" shall mean the rice delivered to a plant before processing.

(b) The following abbreviations shall have the following meanings: (1) "BOD₅" shall mean five day biochemical oxygen demand; (2) "TSS" shall mean total suspended nonfilterable solids; (3) "kg" shall mean kilogram(s); (4) "kkg" shall mean 1000 kilograms; (5) "lb" shall mean pound(s); and (6) "cwt" shall mean hundred weight.

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

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:

<i>Effluent characteristic</i>	<i>Effluent limitation</i>
BOD ₅ -----	Maximum for any one day 0.42 kg/kg of rice (0.043 lb/cwt) Maximum average of daily values for any period of thirty consecutive days 0.140 kg/kg of rice (0.014 lb/cwt)
TSS -----	Maximum for any one day 0.24 kg/kg of rice (0.024 lb/cwt) Maximum average of daily values for any period of thirty consecutive days 0.080 kg/kg of rice (0.008 lb/cwt)
pH -----	Within the range of 6.0 to 9.0

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

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:

<i>Effluent characteristic</i>	<i>Effluent limitation</i>
BOD ₅ -----	Maximum for any one day 0.21 kg/kg of rice (0.021 lb/cwt) Maximum average of daily values for any period of thirty consecutive days 0.070 kg/kg of rice (0.007 lb/cwt)

<i>Effluent characteristic</i>	<i>Effluent limitations</i>
TSS -----	Maximum for any one day 0.69 kg/kg of rice (0.003 lb/cwt) Maximum average of daily values for any period of thirty consecutive days 0.030 kg/kg of rice (0.003 lb/cwt)
pH -----	Within the range of 6.0 to 9.0

§ 406.64 Standards of performance for new sources.

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:

<i>Effluent characteristic</i>	<i>Effluent limitation</i>
BOD ₅ -----	Maximum for any one day 0.21 kg/kg of rice (0.021 lb/cwt) Maximum average of daily values for any period of thirty consecutive days 0.070 kg/kg of rice (0.007 lb/cwt)
TSS -----	Maximum for any one day 0.09 kg/kg of rice (0.009 lb/cwt) Maximum average of daily values for any period of thirty consecutive days 0.030 kg/kg of rice (0.003 lb/cwt)
pH -----	Within the range of 6.0 to 9.0

§ 406.65 Pretreatment standards for new sources.

The pretreatment standards under section 307(c) of the Act for a source within the parboiled rice processing subcategory 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 of this title except that for the purposes of this section, § 128.133 of this title shall be amended to read as follows: "In addition to the prohibitions set forth in § 128.131 of this title, 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 § 406.64 provided that, if the publicly owned treatment works which receives the pollutants is committed, in its NDES 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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