Title 40—Protection of Environment
CHAPTER I—ENVIRONMENTAL PROTECTION AGENCY
SUBCHAPTER N—EFFLUENT GUIDELINES AND STANDARDS
[FRL 702-7]

PART 419—PETROLEUM REFINING POINT SOURCE CATEGORY PRETREATMENT STANDARDS FOR EXISTING SOURCES

Final Regulations

Pretreatment standards for existing sources set forth in interim final form below are hereby promulgated by the Environmental Protection Agency (EPA or Agency). On May 9, 1974, EPA promulgated a regulation adding Part 419 to Chapter I of the Code of Federal Regulations (39 FR 16560). That regulation, with subsequent amendments on May 20, 1975 (40 FR 21939), established effluent limitations and guidelines for existing sources of petroleum refining point source category. Pretreatment standards for existing sources in the petroleum refining point source category. Pretreatment standards for existing sources in the petroleum refining point source category were promulgated on May 9, 1974 (39 FR 16574). The regulations established here have been substantially modified from the form in which they were promulgated and, therefore, are being established in interim final form here so that further comments can be received. The regulation set forth below will amend 40 CFR 419 petroleum refining point source category by adding §419.14 to the topping subcategory (Subpart A), §419.24 to the cracking subcategory (Subpart B), §419.34 to the petrochemical subcategory (Subpart C), §419.44 to the tube subcategory (Subpart D), and §419.54 to the integrated subcategory (Subpart E) pursuant to section 307(b) of the Federal Water Pollution Control Act as amended (33 U.S.C. 1251 and 1317[b]; 86 Stat. 816 et seq.; Pub. L. 92-500) (the Act).

(a) Legal Authority. Section 307(b) of the Act requires the establishment of pretreatment standards for pollutants introduced into publicly owned treatment works by discharging directly or indirectly dischargers that were identified as chronic, subacute, and acute contaminants and cause adverse affects on aquatic life or public health or welfare. The regulations establish the maximum concentrations of ammonia and oil and grease allowed to be discharged by (a) above which are included in the regulation set forth below. When the general pretreatment regulations are promulgated, these standards will be reviewed for consistency with the general policy stated therein.

The regulations establish the maximum concentrations of ammonia and oil and grease allowed to be discharged by (a) above which are included in the regulation set forth below. When the general pretreatment regulations are promulgated, these standards will be reviewed for consistency with the general policy stated therein.

(b) Summary and Basis of Pretreatment Standards for Existing Sources. The regulation set forth below establishes pretreatment standards for pollutants discharged to publicly owned treatment works from existing sources with the subparts set forth in paragraph (a) above. This regulation establishes two sets of pretreatment standards for pollutants based on the authority of section 307(b) of the Act. The first set, known as prohibited discharge standards, are designed to prevent inhibition or interference with the operation of publicly owned treatment works. These prohibited discharge standards have minor changes are identical to the provisions contained in the general pretreatment regulation now found at 40 CFR 128.131. The second set, known as categorical pretreatment standards, apply to existing sources in this specific industrial subcategory. These standards contain numerical limitations based upon available technologies to prevent the discharge of any pollutant into POTW which may interfere with, pass through, or otherwise be in-
necessary is estimated to be $.60 million with an annual cost of $.22 million, where the annual cost includes depreciation, capital cost of capital, interest, and all maintenance costs. This would increase the cost per barrel of crude oil processed from $.02 for small plants to $.02 for large plants. The additional cost of treatment is estimated to be no more than 1 percent of the value added by the refinery. The user charges that are incurred by these plants are expected to be less than $.01 per barrel of crude oil capacity. When user charges and estimated pretreatment costs are combined, the resulting cost per barrel is still less than the $.16 per barrel costs that many direct discharging refineries must pay for wastewater treatment. This regulation will reduce but not eliminate the competitive advantage of the indirect discharger that many direct discharging refineries must pay for wastewater treatment. For those individual cases in which sulfides, phenol, or chromium might be controlled, there is no expected change in price, production, or employment from results of these standards.

The Agency recommends that sulfides, phenol, and chromium be controlled as needed on an individual basis by local authorities. Therefore, an analysis was performed considering the costs of controlling these additional pollutants. The investment cost is estimated to be an additional $14.9 million, with a corresponding annualized cost of $1.1 million. The identified indirect dischargers were required to control sulfides, phenol, and chromium. The five indirect discharging refineries with the greatest potential for economic effects would incur a slightly lower return on investment and a reduction in nonenvironmental investment of no more than $.50 million. No changes in production, prices, or employment are expected to result from these standards.

(c) Compliance Date. Section 301 of the Act anticipates that pretreatment standards will be established and compliance would be required before July 1, 1977, while section 307(b) specifies "a time for compliance not to exceed three years from the date of promulgation" of the standard. In view of this conflict of statutory language and the fact that the pretreatment standards are only now being promulgated, the Agency believes that the compliance date as set forth in section 307(b) should apply. The time for compliance with the categorical pretreatment standards will be within the shortest reasonable time but no later than three years from the effective date. However, this does not preclude a Regional Administrator or local or State authority from establishing a more expeditious compliance deadline, if it is appropriate. Compliance with the prohibited discharge standards is required immediately upon the effective date of these regulations since these standards are essentially the same as 40 CFR 128.131 and since the deadline for compliance with 40 CFR 128.131 has passed.

The Agency is subject to an order of the United States District Court for the District of Columbia entered in Natural Resources Defense Council (NRDC) v. EPA, 8 E.R.C. 2126 (D.D.C. 1976) which requires the promulgation of pretreatment standards for this industry category no later than February 15, 1977. The court order which was entered by the United States Court for the District of Columbia can be found by following a consent agreement among the parties to four lawsuits, placed EPA on rigid time-tables for the preparation and publication of water pollution regulations for 21 broad industry categories and 65 families of water pollutants.

It has not been practical to develop and republish regulations for this category in a second proposed form and to provide a 30-day comment period within the time constraints imposed by the court order referred to above. Accordingly, the Agency has determined pursuant to 5 USC 553(b) that notice and comment on the interim final regulations prior to promulgation would be impractical and contrary to the public interest.

Interested persons are encouraged to submit written comments. Comments should be addressed to the Environmental Protection Agency, 401 M St., SW., Washington, D.C. 20460, Attention: Distribution Officer, WH-522. Comments on all aspects of the regulation are solicited. Two sets of comments are in the nature of criticisms as to the adequacy of data which are available, or which may be relied upon by the Agency. In this event comments address the approach taken by the Agency in establishing pretreatment standards, EPA solicits suggestions as to what alternative approach should be taken and why and how this alternative approach satisfies requirements of section 307(b) of the Act.

A copy of all public comments will be available for inspection and copying at the EPA Public Information Reference Room (EPA Library) Waterfront Mall, 401 M Street, SW., Washington, D.C. 20460. A copy of the technical study and economic study referred to above, and certain supplemental data will be maintained at this location for public review and copying. The EPA information regulation, 40 CFR Part 2, provides that a reasonable fee may be charged for copying.

All comments received within sixty days of publication will be considered. The Agency especially solicits comments concerning those refineries not identified in the present study and those refineries for which hook-up to POTW is planned.

Steps previously taken by the Environmental Protection Agency to facilitate public response within this time period are contained in the advance notice concerning public review procedures published on August 6, 1973 (38 FR 21202).

In addition, section 8 of the FWPCA authorizes the Small Business Administration, through its economic disaster loan program, to make loans to assist any small business concern in effecting additions to or alterations in their equipment, facilities, or methods of operation so as to meet water pollution control requirements under the FWPCA, if the concern is likely to suffer a substantial economic injury without such assistance.

Further details of this Federal loan program are contained in the Federal Register of March 23, 1977.


DOUGLAS M. COSTLE
Administrator.

ATTACHMENT A

TECHNICAL SUMMARY AND BASIS FOR REGULATIONS

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

(1) General methodology. The pretreatment standards set forth herein were developed in the following manner.

The point source category was first studied with the desire for developing separate pretreatment standards for each segment of the category. This analysis included a determination of whether differences in raw materials used, products produced, manpower, pollution control equipment, age, size, wastewater constituents, and other factors require development of separate standards for different segments of the point source category.

Because waste characteristics for each such segment were then identified. This
included an analysis of the source, flow and volume of water used in the processes employed, the sources of waste and wastewaters in the operation, and the constituents and amounts of constituents of the wastewaters which should be subject to pretreatment standards. In addition, the Agency assessed the extent to which the constituents discharged would pass through or interfere with POTW.

The control and treatment technologies existing within each segment were identified. This included an identification of distinct control and treatment technologies, including both in-plant and end-of-process technologies. It also included an identification of the effluent level resulting from the application of each of the technologies, in terms of the amount of constituents and the chemical, physical, and biological characteristics of pollutants. 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 these technologies upon other pollution problems, including air, solid waste, noise and radiation were identified. The energy requirements of each control and treatment technology were also identified 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 pretreatment technology. In identifying such technologies, various factors were considered. These included the total cost of application of the technology, the age of equipment and facilities involved, the processes employed, the engineering aspects of the application of various types of control techniques, process changes, non-water quality environmental impact (including energy requirements) and other factors.

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

Summary of conclusions with respect to sections of the petroleum refining point source category.

(i) Categorization. The petroleum refining point source category was subcategorized, in support of the direct discharge limitations, primarily on process considerations. In the course of establishing a subcategorization scheme for the indirect discharging segment of this industry, it was determined upon analysis of location, age, economic status, size, wastewater characteristics, and manufacturing processes of indirect versus direct dischargers, that there are no fundamental differences that would warrant a different method of subcategorization for the indirect discharge segment of the petroleum refining industry. However, it was further concluded upon analysis of local dischargers should be subject to the same pretreatment standards. This conclusion resulted from the fact that the pretreatment standards recommended herein are imposed and a concentration basis, as opposed to the mass basis utilized for direct dischargers. Additionally, the pollutants of concern for pretreatment purposes are common to all dischargers. The categories and subcategories of the subcategorization scheme previously established.

While it has been determined that the indirect dischargers should be subject to the same standards, the regulations presented below are structured in the same manner as the direct discharging segment. This approach was taken to keep the regulation (40 CFR Part 419) straightforward and understandable. These pretreatment standards may, however, be subject to revision in the future in view of the order of the United States District Court for the District of Columbia entered in NRDC v. EPA, 8 E.R.C. 2130 (D.D.C. 1976). Upon this consideration, it may become appropriate to revise the pretreatment standards in such a manner as to require subcategorization. Possible revisions to the pretreatment standards that may require different subcategorization include: (1) the addition of specific problem pollutants which could involve the use of flow models similar to those for the BPCTCA regulations (40 CFR Part 419); or (2) the addition of pollutants to the list of compounds limited by these regulations.

(ii) Waste characteristics. The volume of process wastewater generated by the indirect discharging segment of the industry was found to be generally the same (per thousand barrels of feedstock) as the direct discharge segment of the industry. Total effluent flows for indirect dischargers range from 0.006 million gallons per day (MGD) to 7.64 MGD, with the average flow rate equal to 1.42 MGD.

Wastewater present in refinery effluent wastewaters include BOD, COD, oil and grease, suspended solids, sulfides, phenolic compounds, and chromium. The current study indicated that the mean concentrations of these pollutants are as follows: BOD—165 mg/l; COD—923 mg/l; oil and grease—49.4 mg/l; sulfides—7.81 mg/l; ammonia—87.8 mg/l; phenols—27.9 mg/l; and chromium—0.84 mg/l. These values are based upon all the data received for these pollutants, whether or not best practicable pretreatment technology existed at the refineries when the data were obtained.

(iii) Origin of wastewater pollutants. Wastewater emanate from a number of sources within a refinery. Analysis of the data collected shows that the major source of ammonia, sulfide, and phenol is the sour water waste stream. Sour waters are produced when steam is used as a stripping medium in the various cracking processes present in a refinery. The major sources of oil and grease are waste streams that, when combined, are referred to as the oily sewer. These waters are generated by many operations within a refinery, including pad washings, tank bottom washings, and contaminated storm runoff.

The major source of chromium is cooling tower blowdown when chromium compounds are used as corrosion inhibitors in a refinery's cooling water system.

(iv) Treatment and control technology. Wastewater treatment and control technologies have been studied for this industry to determine what should be considered as the best practicable pretreatment technology. The pretreatment study showed that the sources and constituents of pollutants are similar between all subcategories of the petroleum refining industry. Therefore, the same control and pretreatment technologies are available to the entire industry segment regardless of subcategorization.

Petroleum refinery wastes are generally treated by biological treatment. Prior to biological treatment, various pretreatment techniques are employed at direct discharging petroleum refineries. These pretreatment steps include: (1) oil and grease removal through the application of API separators and dissolved air flotation units or other similar processes and (2) sulfide and ammonia removal through steam stripping of sour water waste streams. These pretreatment technologies are employed to protect biological treatment systems.

Sound pretreatment practice includes the segregation of major wastewater generation streams. Such a segregation reduces the size of equipment needed for pretreatment. These wastewater streams include: Storm water runoff, spent caustic, sour waters, and cooling tower blowdown.

Newer refineries are being designed or modified with reduction of water use and pollutant loading as a major part of the design criteria. Some of these techniques are used by current indirect dischargers, or may be planned with future modifications.

Achievement of the pretreatment limitations for this industry will generally require the following control and pretreatment technologies which are identical to those generally employed by direct dischargers: (1) the use of sources such as stripper wash waters for the removal of phenol from the sour water waste streams; and (2) the use of dissolved air flotation (DAF), or similar processes, in addition to the usual techniques for oil and grease removal. At the present time, all indirect dischargers have API separators as part of their pretreatment schemes.

The Agency also recommends that sulfides, phenol, and chromium be controlled as needed on an individual basis by local authority. The data available to the Agency at the present time do not support the implementation of more stringent pretreatment standards for these pollutants.

Phenolic compounds are biodegradable by bacteria which become acclimated to them. Many POTW are able to accept industrial effluents containing phenol without experiencing either upset or pass-through problems. The limited data available to the Agency indicate that the removal efficiency of phenol by individual POTW should be considered in the development of pretreatment standards for...
RULES AND REGULATIONS

this parameter. Therefore, pretreatment standards for phenol should be established on an individual basis by a POTW receiving refinery wastewater. In those cases where it is demonstrated that the POTW is unable to adequately treat a specific refinery's phenolic wastewaters, a phenol limitation of 38 mg/l (daily maximum) can be achieved and is included as guidance for the purpose of assisting local authorities. The model technology which supports this limitation is biological segregation with steam water stripper bottoms. Detailed discussion and supporting data are included in the Development Document for Efluent Limitations Guidelines for the Petroleum Refining Point Source Category, and its Supplement for Pretreatment Standards.

It was judged at this time to be inappropriate to set a specific national pretreatment standard for chromium. Currently, there is no specific pretreatment technology practiced in the industry for removal of this pollutant, and, therefore, removal of this parameter was not included in the standards for segregated sour water stripper bottoms. Detailed discussion and supporting data are included in the Development Document for Efluent Limitations Guidelines for the Petroleum Refining Point Source Category, and its Supplement for Pretreatment Standards.

In those individual cases where chromium levels are judged to have a significant detrimental effect on a POTW, by creating either upset or pass-through problems, removal of this parameter by granular activated carbon was not included as guidance for the purpose of assisting local authorities. The model technology which supports this limitation is treatment of segregated cooling tower blowdown by clarification, subsequent to reduction of hexavalent chromium to trivalent with sulfur dioxide. This technology is discussed in the Supplement for Pretreatment to the Development Document for the Petroleum Refining Industry.

Sulfides discharged by refineries may interfere with operation of a POTW, particularly with regard to corrosion of concrete pipes that are used to convey effluent to the treatment plant itself. In those individual cases where sulfide levels are judged to have a significant detrimental effect on a POTW, a sulfide limitation of 3.0 mg/l (daily maximum) can be achieved and is included as guidance for the purpose of assisting local authorities. The model technology which supports this limitation is steam stripping of sour water waste streams. Detailed discussion and supporting data are included in the Development Document for Efluent Limitations Guidelines for the Petroleum Refining Point Source Category, and its Supplement for Pretreatment Standards.

The total annual operating costs for control of wastewater pollutants are summarized in pollutant parameter as follows:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Cost (Thousand)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonia</td>
<td>3,787,000</td>
</tr>
<tr>
<td>Oil and grease</td>
<td>2,460,000</td>
</tr>
</tbody>
</table>

**Total Costs:** 6,244,000

These figures represent estimates of the maximum costs that could be experienced if all identified indirect discharging refineries not having best practicable pretreatment technology were forced to implement technologies for removal of this pollutant, and, therefore, many refineries may not require all the equipment in the pretreatment model in order to meet pretreatment standards for these two parameters.

The cost estimates presented above do not include land costs, and assume that ample space is available for the pretreatment systems. In addition, the estimates also assume that no unusual foundation or other site-specific problems exist. The land requirements are relatively minimal compared to those for refinery processing equipment, and the land area required could generally be available to petroleum refinery operators.

Total annual operating costs for the removal of sulfides, phenols, ammonia, and oil and grease were developed with the use of model, or typical-sized, plants. A summary of the total annual operating costs for these model plants are as follows:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Cost (Thousand)</th>
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</table>

**Summary of the Total Annual Operating Costs for these Model Plants:** 6,244,000

(v) Energy requirements and non-water quality environmental impacts.

The energy requirements related to the implementation of these regulations are limited to pumping requirements for liquid removal, sludge thickening, steam water stripping, and energy to operate various pumping and mixing equipment associated with dissolved air flotation. Energy requirements for sour water stripping can range from 1,000 to 6,000 BTU/hr for a 20,000 bbl/day refinery to 180,000 BTU/hr for a 150,000 bbl/day refinery. Energy requirements for DAF gas range from 6 horsepower (H.P.) for a 20,000 bbl/day refinery to 180 H.P. for a 200,000 bbl/day refinery.

Non-water quality considerations associated with pretreatment primarily relate to the gaseous stream from sour water strippers. Generally, the gaseous stream from a sour water stripper is either incinerated or directed to a recovery facility. If a recovery stripper is added in series for ammonia removal, it is not anticipated that the disposition of the gaseous stream will create serious problems within the refinery. In fact, the use of two strippers in series generally allows for the production of high purity sulfide and ammonia off-gases which can be recovered and disposed of more readily. In some refineries, ammonia is recovered in the aqueous or anhydrous form and sold as a by-product of the stripping operation. The Agency solicits information which provides cost and other data regarding sulfide and ammonia off-gas recovery and disposal.

Sludges created by a biological system for phenol removal could be combined with other semi-solid wastes generated in the refinery. These sludges would not be offensive in nature, since they would not contain sanitary sewage. Similarly, sludge generated by a DAF system could be combined with API separator sludge for treatment and disposal. The only froth could be directed to the refinery stop or system or disposed of by incineration.

In most cases the sludges described above are nonhazardous substances requiring only minimal custodial care. However, some constituents may be
hazardous and may require special consideration. In order to insure long term protection of the environment from these hazardous or hazardous treatment residuals, special consideration of disposal sites must be made. All landfill sites where such hazardous wastes are disposed should be selected after ground water horizontality and vertical migration of these contaminants to ground or surface waters. In cases where geologic conditions may not reasonably ensure this, adequate legal and mechanical precautions (e.g., imperious liners) should be taken to ensure long term protection to the environment from hazardous materials. Where appropriate, the location of solid hazardous materials disposal sites should be permanently recorded in the appropriate office of legal jurisdiction.

Other non-water quality aspects, such as noise, economics, and inflationary impact analysis. The Agency has evaluated the inflationary and economic impacts of these regulations in accordance with Executive Order 11821 that requires inflation impact analyses for associated regulations. The primary approach in studying the effects of these pretreatment standards was to assess each indirect discharger's costs and pretreatment competitive advantage as compared to direct discharging refineries. Since indirect dischargers form only about 10 percent of all refineries, the prices and returns on investment are primarily set by direct dischargers. The only major difference between this group of indirect dischargers and other refineries is that they will incur user charges and pretreatment costs rather than the costs of meeting the 1977 and 1983 regulations for direct dischargers. The relative competitive advantage can be assessed by comparing the differences in costs. The costs and pretreatment charges for all indirect dischargers were proposed in the draft development of pretreatment standards by submitting written comments. In addition, a public meeting was held on January 21, 1977, at EPA headquarters in Washington, D.C., at which interested persons were invited to express their views publicly. Public comments were also solicited when existing source pretreatment standards for this industry were proposed in the Federal Register on May 9, 1975 (39 FR 16574).

The following commenters responded with comments: U.S. Department of Commerce; County Sanitation Districts of Los Angeles County; Metropolitan Sanitary District of Greater Chicago; Gulf Coast Waste Disposal Authority; American Petroleum Institute; Ashland Oil, Inc.; Atlantic Richfield Co.; Betz Laboratories, Inc.; Chevron, U.S.A., Inc.; Clark Oil and Refining Corp.; Marathon Oil Co.; Mobil Oil Corp.; Shell Oil Co.; Texaco, Inc.; and Union Oil Co. of California.

The major issues raised by commenters during the development of the interim final pretreatment standards and the resolution of these issues are as follows:

(1) The establishment of national pretreatment standards was criticized. Many commenters argued that individual municipalities may establish more stringent standards. The standards are established on a case-by-case basis at the local level.

(2) Several commenters indicated that the use of chromium-based corrosion inhibitors in cooling systems is more effective and economical than the suggested use of organic-based corrosion inhibitors.

The Agency recognizes that the use of chromium-based corrosion inhibitors can be more economical than the use of organic-based inhibitors. However, chromium and its compounds are included on the list of pollutants of concern for treatment. chromium is not recommended. The use of organic-based corrosion inhibitors and better control of cooling tower blowdown for reduction of chromium discharges. As indicated in the response to comment #1, guidance for the control of chromium discharges is presented in

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Appendix A. This guidance limitation and attendant costs for compliance are based on the maximum of the segregated cooling tower blowdown stream, rather than the use of ammonia and biologic corrosion inhibitors. However, the Agency is reviewing the need for a national pretreatment standard for ammonia during the process of developing the final pretreatment regulation for the petroleum refining industry.

Several commenters indicated that the current cost of steam is considerably higher than the cost figure used by EPA for costing purposes.

The Agency reassessed the cost of steam. The interim final development document for pretreatment and the economic reports include steam costs at $3.00/1,000 lb. rather than the $1.00/1,000 lb. estimate used in the draft document.

(4) One commenter argues that there should be no national pretreatment standard for ammonia because ammonia is a nutrient in the bio-oxidation process. However, excessively high levels of ammonia exhibit inhibitory effects on the bio-oxidation process, and ammonia serves as a nutrient in the bio-oxidation process. Thus, the Agency recognizes that, at relatively low concentration levels, ammonia will not be introduced into a POTW. The Agency has reassessed the cost of ammonia and sulfur recovery systems that may be introduced into a publicly owned treatment works by a source subject to the provisions of this subpart.

The Agency has reassessed the cost of ammonia for costing purposes. Several commenters argued that the cost estimates used in the study were understated. The Agency solicits estimates which include itemized cost breakdowns (e.g., land costs, site preparation costs, foundation costs, equipment costs, installation costs, etc.). Based on the responses to this request, the Agency will reassess, if necessary, the costs and economic impacts prior to final promulgation of this regulation.

§ 419.14 Pretreatment standards for existing sources.

For the purpose of establishing pretreatment standards for a source within the cracking subcategory, the provisions of 40 CFR 128 shall not apply. The pretreatment standards for an existing source within the cracking subcategory are set forth below:

(c) Any owner or operator of any source to which the pretreatment standards required by § 419.14(a) are applicable, shall be in compliance with such standards upon the effective date of such standards. The time for compliance with standards required by § 419.14(b) shall be within the shortest time but not later than three years from the effective date of such standards.

§ 419.23 Pretreatment standards for existing sources.

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

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

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

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

Pollutant or pollutant property:

Ammonia (as N) 100
Oil and grease 100

Any owner or operator of any source which comports with the cost maximum for any 1 day (milligrams per liter)

§ 419.14(b) shall not apply. The Agency solicits detailed cost estimates which include itemized cost breakdowns (e.g., land costs, site preparation costs, foundation costs, equipment costs, installation costs, etc.). Based on the responses to this request, the Agency will reassess, if necessary, the costs and economic impacts prior to final promulgation of this regulation.

The final pretreatment regulation for ammonia and that if promulgates a numerical standard.

The Agency recognizes that several commenters indicated that the factors used for adjusting costs from 1972 to 1976 dollars (1.39) was unrealistically low.

The cross-check of three additional cost indexes—CE plant costs, MES equipment costs, and ZNR construction costs—yields a cost adjustment factor range of 1.30 to 1.49 which comprises with the cost adjustment factor used in the study.

Several commenters indicated that their costs incurred for installation of water pollution control facilities similar to those considered in this study were considerably higher than those presented in the draft development document. The Agency has reassessed the cost of steam. The interim final development document for pretreatment and the economic report include steam costs at $3.00/1,000 lb. rather than the $1.00/1,000 lb. estimate used in the draft document.

The direct discharging segment of the petroleum refining industry typically "pretreats" sour waters by steam stripping prior to biological treatment (e.g., activated sludge, aerated lagoons) to minimize, among other things, excessive ammonia loadings in the biological system. The national pretreatment standard for ammonia in the present regulation is based on the need to protect POTW from excessive ammonia loadings and is established at levels achievable by technology in common use today.

Several commenters indicated that costs for downstream ammonia and sulfur recovery were not adequately addressed in the draft development document.

The Agency recognizes that sufficient data were not available during the study to include meaningful cost estimates of downstream ammonia and sulfur recovery. The Agency solicits cost information on the types and capacities of ammonia and sulfur recovery systems associated with removal of these materials from refinery wastewaters. In addition, the Agency solicits explanations and evaluations of existing or potential problems relative to non-water quality impacts from ammonia and sulfide treatment processes (especially air pollution). These comments will be carefully considered in the development of the final pretreatment regulation for this industry.

Two commenters indicated that they presently have plants discharging to POTW which were not identified in the study.
tity of pollutants or pollutant properties controlled by this subsection which may be introduced into a publicly owned treatment works by a source subject to the provisions of this subpart.

### Pretreatment standards—

**maximum for any 1 d**

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<tr>
<th>Pollutant or pollutant property</th>
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<tbody>
<tr>
<td>Ammonia (as N)</td>
<td>100</td>
</tr>
<tr>
<td>Oil and grease</td>
<td>100</td>
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</tbody>
</table>

(c) Any owner or operator of any source to which the pretreatment standards required by § 419.34(a) are applicable, shall be in compliance with such standards upon the effective date of such standards. The time for compliance with standards required by § 419.34(b) shall be within the shortest time but not later than three years from the effective date of such standards.

### § 419.44 Pretreatment standards for existing sources.

For the purpose of establishing pretreatment standards under section 307 (b) of the Act for a source within the lube subcategory, the provisions of 40 CFR 123 shall not apply. The pretreatment standards for an existing source within the lube subcategory are set forth below.

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

1. Pollutants which create a fire or explosion hazard in the publicly owned treatment works.
2. Pollutants which will cause corrosive structural damage to treatment works, but in no case pollutants with a pH lower than 5.0, unless the works is designed to accommodate such pollutants.
3. Solid or viscous pollutants in amounts which would cause obstruction to the flow in sewers, or other interference with the proper operation of the publicly owned treatment works.
4. Pollutants at either a hydraulic flow rate or pollutant flow rate which is excessive over relatively short time periods so that there is a treatment process upset and subsequent loss of treatment efficiency.

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

### Pretreatment standards—

**maximum for any 1 day**

<table>
<thead>
<tr>
<th>Pollutant or pollutant property: Ammonia (as N)</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil and grease</td>
<td>100</td>
</tr>
</tbody>
</table>

(c) Any owner or operator of any source to which the pretreatment standards required by § 419.44(a) are applicable, shall be in compliance with such standards upon the effective date of such standards. The time for compliance with standards required by § 419.44(b) shall be within the shortest time but not later than three years from the effective date of such standards.