

Title 40—Protection of the Environment

CHAPTER I—ENVIRONMENTAL PROTECTION AGENCY

SUBCHAPTER N—EFFLUENT GUIDELINES AND STANDARDS

PART 419—PETROLEUM REFINING POINT SOURCE CATEGORY

On December 14, 1973 notice was published in the FEDERAL REGISTER (38 FR 34542), that the Environmental Protection Agency (EPA or Agency) was proposing effluent limitations guidelines for existing sources and standards of performance and pretreatment standards for new sources within the topping subcategory, cracking subcategory, petrochemical subcategory, lube subcategory, and integrated subcategory of the petroleum refining category of point sources.

The purpose of this notice is to establish final effluent limitations guidelines for existing sources and standards of performance and pretreatment standards for new sources in the topping subcategory, cracking subcategory, petrochemical subcategory, lube subcategory, and integrated subcategory of the petroleum refining category of point sources, by amending 40 CFR Ch. I, Subchapter N, to add a new Part 419. This final rulemaking is promulgated pursuant to sections 301, 304 (b) and (c), 306 (b) and (c) and 307(c) of the Federal Water Pollution Control Act, as amended, (the Act); 33 U.S.C. 1251, 1311, 1314 (b) and (c), 1316 (b) and (c) and 1317(c); 86 Stat. 816 et seq.; Pub. L. 92-500. Regulations regarding cooling water intake structures for all categories of point sources under section 316(b) of the Act will be promulgated in 40 CFR Part 402.

In addition, the EPA is simultaneously proposing a separate provision, which appears in the proposed rules section of the FEDERAL REGISTER, stating the application of the limitations and standards set forth below to users of publicly owned treatment works which are subject to pretreatment standards under section 307(b) of the Act. The basis of that proposed regulation is set forth in the associated notice of proposed rulemaking.

The legal basis, methodology and factual conclusions which support promulgation of this regulation were set forth in substantial detail in the notice of public review procedures published August 6, 1973 (38 FR 21202) and in the notice of proposed rulemaking for the topping subcategory, cracking subcategory, petrochemical subcategory, lube subcategory, and integrated subcategory. In addition, the regulations as proposed were supported by two other documents: (1) The document entitled "Development Document for Proposed Effluent Limitations Guidelines and New Source Performance Standards for the Petroleum Refining Segment of the Petroleum Refining Point Source Category" (December 1973) and (2) the document entitled "Economic Analysis of Proposed Effluent Guidelines, Petroleum Refining Industry" (September 1973). Both of these documents were made available to the public and circulated to interested persons at approximately the

time of publication of the notice of proposed rulemaking.

Interested persons were invited to participate in the rulemaking by submitting written comments within 30 days from the date of publication. Prior public participation in the form of solicited comments and responses from the States, Federal agencies, and other interested parties were described in the preamble to the proposed regulation. The EPA has considered carefully all of the comments received and a discussion of these comments with the Agency's response thereto follows. The regulation as promulgated contains some significant departures from the proposed regulation. The following discussion outlines the reasons why these changes were made and why other suggested changes were not made.

(a) *Summary of major comments.* The following responded to the request for comments which was made in the preamble to the proposed regulation: Interstate Sanitation Commission; Shell Oil Company; Phillips Petroleum Company; Getty Oil Company; Union Oil Company of California; Exxon Company, USA; Larry D. Killion; American Petroleum Industry; Standard Oil Company of Ohio; UOP Process Division; Gulf Oil; City of Buffalo; Mobil Oil Corporation; Macario Independent Refinery; Texaco Incorporated; Standard Oil Company of Indiana; National Wildlife Federation; State of California; County of Erie, NY; State of Alaska; Los Angeles County; Buffalo (N.Y.) Area Chamber of Commerce; State of Colorado; State of Michigan; U.S. Water Resources Council; Sun Oil Company; Department of the Interior; The Honorable Henry P. Smith, III; State of North Carolina.

Each of the comments received was carefully reviewed and analyzed. The following is a summary of the significant comments and EPA's response to those comments.

(1) Clean rainfall limits should be set at the same level as treatment plant effluent to avoid having to treat marginally contaminated runoff.

The handling of storm runoff was re-evaluated and the run-off from a refinery was broken down further to consider tankfield runoff, process area runoff and other noncontaminated runoff. This re-evaluation also considered the treatment of marginally contaminated runoff. (See "Development Document," Section VII).

As a result of this evaluation a limit of 35 mg/1 TOC and 15 mg/1 oil and grease (both maximums) was set for both tankfield runoff and other uncontaminated runoff. (This is changed from 15 mg/1 of TOC and no visible sheen). The limits for contaminated runoff (process area runoff treated along with other process wastes) should remain the same.

(2) The definition of feedstocks should include imported catalytic cracker feed, reformer feed and petrochemical feeds.

Since these feeds do not receive full processing at the refinery and are free of some contaminants (removed during prior processing), no allocation based on throughput should be given. The additional waste loads caused by the proc-

essing required is taken into account by the higher process factor the refinery will receive. (See "Development Document," Section IX).

(3) Once-through cooling water should not be included in a production based allocation. The reasons for this statement and alternate approaches given are as follows:

(a) The March 7, 1973 guidance excluded once-through water from consideration; (b) the low concentrations contained have no environmental impact; (c) analytical techniques do not allow for accurate results at low concentrations; and (d) a separate limit of 5 mg/1 of TOC (net) should be used.

An evaluation of water flow data from over one hundred refineries, both with recycle and once-through cooling water systems, showed that only 25 percent of the total flow from recycle refineries results from cooling tower blowdown. In addition, the once-through refineries showed higher process waste flows than the recycle refineries. Therefore, once-through cooling water is being excluded from the production based allotment and a separate limit of 5 mg/1 of TOC is being set to prevent gross contamination of these waters. (See "Development Document"; section IX; Supplement B, "Refinery Water Use".)

(4) Limits should be based on a monthly average rather than 30 day running average. (Running average—any thirty consecutive days).

The limits are set in terms of a running average to prevent slackening off at the end of any fixed period and therefore guarantee optimum performance at all times.

(5) There isn't enough variability allowed between the daily and monthly limits. Arguments given to justify higher values were as follows:

(a) Data were not random or normally distributed; (b) variability not being met by some refineries using BPCTCA end-of-pipe; and (c) high analytical errors.

The variability factors can not be compared as a ratio of daily and monthly (30 day average) values. Both the daily and 30 day average variabilities were based on the annual average. The daily variability predicts the maximum day over a period of a year and the 30 day average variability predicts the maximum 30 day average in any year.

These variabilities were computed from data taken from several plants (one year's or more data in each case). The variability factors therefore include all of the errors (resulting variability) that result from sampling and analytical technique and accuracy.

The data from the plants analyzed were found to be either normally or log normally distributed.

The fact that certain refineries, which already have the end-of-pipe treatment as defined by BPCTCA, are showing higher variabilities than those of the exemplary plants only points out that BPCTCA as defined should include factors other than end-of-pipe treatment (i.e. good water use practices, good housekeeping, etc.). (See "Development

Document," section IX, "Statistical Variability of a Properly Designed and Operated Waste Treatment Plant"; Supplement B, "Variability").

The daily maximum variability was increased to reflect a 99 percent probability of occurrence. This was done to reduce the number of technical violations.

TOC limit should be eliminated and set later as its ratio to BOD5 is determined at each refinery.

The limits set for TOC are necessary because of the many instances when BOD5 COD, or both are not practical limits (as a result of analytical errors, time limitations, etc.). (See "Development Document," section IX; "Procedure for Development of BPCTCA Effluent Limitations").

The ratio of TOC/BOD, proposed at 1.8 was raised to 2.2.

(7) A subcategorization should be made based on the age of the refinery because of non-segregated sewers and the inequitable financial burden.

Those refineries with non-segregated sewers will probably have to either segregate their once-through cooling water or go to recycle cooling. This has already been done by many older refineries and was considered as part of the economic evaluation.

(8) The American Petroleum Institute has proposed a method to further subcategorize the petroleum industry. This approach is based on a mathematical analysis of the 1972 EPA/API Raw Waste Load Survey Data. This analysis (not yet completed) proposes to determine the relative effect of various process types on the total refinery flow.

An intensive investigation of this approach has been carried out. As a result, it was found that both size (feedstock throughput) and process configuration weigh heavily in determining the final flows. Tables have been included in the regulation to allow variation within each subcategory based on both size and process configuration. (See "Development Document," section IV; Supplement B, "Refinery Configuration Analysis").

The size and process factors determined from the above investigation were used to further subcategorize the petroleum industry.

(9) Special consideration should be given for refineries charging California crudes because of the high nitrogen, sulfur and naphthenic acid content.

The heavy (10-20 API gravity) nature of the California crudes requires more intensive processing (cracking, etc.) than lighter grades of crude. From the data available, the process factor (based on severity of operations) adequately accounts for the higher raw waste loads seen in refineries running California crudes. (See "Development Document," Section IV; Supplement B, "California Crudes".)

(10) There is no allowance given in the guidelines for the contaminants present in the intake water (net vs. gross), which are said to be especially significant in once-through cooling water.

The effluent limitations guidelines have generally been developed on a gross or absolute basis. However, the Agency recognizes that in certain instances pollutants will be present in navigable waters which supply a plant's intake water, in significant concentrations, which may not be removed to the levels specified in the guidelines by the application of treatment technology contemplated by BPCTCA.

Accordingly, the Agency is currently developing amendments to its NPDES permit regulations (40 CFR Part 125) which will specify the situations in which the Regional Administrator may allow a credit for such pollutants. The regulations will be proposed for public comment in the near future.

(11) Some correspondents endorsed the proposal made to the Administrator by the Effluent Standards and Water Quality Information Advisory Committee. This proposal is for a significantly different approach to the development of effluent guidelines.

The above-mentioned proposals are under evaluation as a contribution toward future refinements on guidelines for some industries. The Committee has indicated that their proposed methodology could not be developed in sufficient time to be available for the current phase of guideline promulgation. Its present state of development does not provide enough evidence to warrant the Agency's delaying issuance of any standard in hopes that an alternative approach might be preferable.

(12) The BATEA limits were objected to because they are based on pilot plant data.

The Agency recognizes that the technology specified herein as best available technology economically achievable has not been demonstrated in day-to-day operations in this industrial category. However, in determining whether technology has been "demonstrated" for the purposes of standards which must be achieved by 1983, the Agency does not believe that the same high degree of confidence that the technology will work must exist as is the case for 1977 standards. In making the judgment as to whether or not the technology is "available," the Agency examined a wide range of information, including the use of the technology to treat similar wastes in other industrial categories, pilot plant and demonstration projects, and laboratory and other experimental data on various waste treatment processes. Based on such data and information, and the application of the Agency's best judgment, the technology specified herein was determined to constitute the best available technology economically achievable for the petroleum refinery category.

It is recognized that, in some cases, the industry must itself perform some of the pilot plant and other developmental work which will be necessary to bring the technology into full utilization. This does not however, alter the Agency's judgment that the technology

is "available," is "economically achievable," and can be brought on line in time to achieve full compliance by 1983, as required by the Act.

(13) The flow basis, based on 97 percent recycle flow, is too restrictive to be met by older refineries with once-through cooling water and does not consider the varying process complexities within subcategories.

The flow basis is not a flow restriction. It was used to determine the expected pounds/day from a refinery with good water use and the specified end-of-pipe treatment scheme. The refinery with once-through cooling water may continue to discharge that water.

The guideline takes into consideration the difference in expected flow caused by varying process complexities by the use of a process factor that varies the limits within each subcategory based on process configuration. (See "Development Document"; Section IX).

(14) EPA failed to adequately consider factors such as raw material used, products produced, processes, and waste water constituents.

The use of the process factors directly considers the processes used. The raw materials used, products produced and the waste water constituents are covered indirectly because each determines or is determined by the process configuration of each refinery. (See "Development Document"; Section IV; Supplement B, "Refinery Configuration Analysis").

(15) No allowances have been made for malfunctions, breakdowns, and upsets of the treatment plant. Since it may take several weeks to recover from a severe upset, a procedure for reporting these circumstances and obtaining a temporary variance is necessary.

The guideline is based on normal operation. Any consideration of other than normal operation will be covered in the NPDES permits.

(16) The COD limits are too low because of test tolerances. EPA analytical methods state minimum reportable concentrations 200 mg/l in water with 1,000 mg/l of chloride.

Standard methods tolerance at 150 mg/l of COD is ± 14 mg/l at 1,000 mg/l of chloride. There will still be cases where extremely high chloride levels will negate the use of this test and that is one of the reasons for limits being set for three oxygen demanding parameters (BOD5, COD, and TOC).

(17) Data from pilot plant carbon systems indicate removal efficiencies (percent removal) less than those used for BATEA limits. (BOD, COD, oil and grease).

The pilot plant values used are referenced in Table 65 of the Development Document. Concentrations, not removal efficiencies were used to set BOD and oil and grease limits for BATEA.

(18) The oil and grease limits should be raised because the references in the Development Document showed 10 mg/l attainable from bio-treatment and 7 mg/l from activated carbon, yet the guideline is based on 5 mg/l.

The guideline limit (BPCTCA) is based on neither bio-treatment nor activated carbon, but on a polishing step after bio-treatment (i.e., polishing ponds, filters, etc.) (See "Development Document," sections VII and IX).

(19) Consideration should be given to refineries in northern climates because of the effect of temperature on biological treatment systems.

Of the many refineries currently meeting EPA's guidelines for BOD₅; several are located in northern climates (e.g. Billings, Montana; Alma, Michigan). (See supplement B, refinery data).

(20) The Economic Impact Analysis states, "It is not expected that any significant economic impact would result from imposing the 1977 and 1983 effluent limitations." This is not true, especially in the light of the current and future unstable situation of crude oil supply.

An economic impact analysis of pollution controls on the refinery industry completed February, 1974 states "As a result of recent world developments there is a substantial differential between world cartel prices and U.S. domestic oil prices. If this continues, there is reason to suggest that a number of the projected small refinery closures might not occur. Certainly the ability to attract long-term financing for pollution abatement is greatly enhanced by the price differential that exists." (See supplement B, "Impact on Refineries of Pollution Control Regulations", February, 1974).

(21) Oil and grease limits should be based on a maximum effluent concentration of 1 mg/l and should be limited by concentration and not on pounds-production values.

There is neither a demonstrated treatment technology to guarantee 1 mg/l of oil and grease effluent concentration, nor an accepted analytical procedure to measure it.

(22) Effluent limits should be set as lbs/1000 gals of waste water flow based on a specified end-of-pipe treatment and a documented flow for each individual refinery.

This approach does not adequately consider the importance of the in-plant requirements of BPCTCA (good water use, housekeeping, etc.) (See "Development Document", sections VII and IX).

(23) Ammonia levels based on 80 percent removal from the median raw waste load (API separator effluent) and the BPCTCA removal step for ammonia is in-plant in the form of a stripper.

Even though the primary removal of ammonia in a refinery should be done during sour water stripping many refineries have not optimized toward ammonia removal (units designed for sulfide removal). The optimization of stripping for ammonia removal or the installation of two stage strippers is considered BPCTCA. In addition, ammonia will be removed in the treatment plant as it is needed to provide nutrient nitrogen for the biological system. (See "Development Document", section VII).

(24) The economic impact for the removal of chromium and zinc was not considered.

The zinc limit has been deleted as a result of an analysis of the zinc raw waste loads from over one hundred refineries. Only a small percentage of these refineries' raw waste loads exceeded the guideline zinc limit.

A similar analysis showed almost 50 percent of the refineries (using cooling towers, chromium appears in refinery wastes because of its use as a corrosion inhibitor in recycle cooling systems) meeting the total chromium limits with their raw waste. Since the solubility of Cr+3 is less than 0.1 mg/l between pH 6.0 to 9.0, the remaining refineries should meet the guidelines limits by removing the insoluble Cr+3 along with other suspended solids.

The reduction of Cr+6 to Cr+3 occurs naturally in a typical refinery waste because of the presence of reducing agents such as sulfides and sulfites.

The above factors will mean that no additional costs (for removal of chromium) should be involved for the majority of refineries above those required to meet the other parameter limits. (See supplemental B, "Raw Waste Load Survey—Zinc and Chromium").

(25) There is a need to monitor and control all identified pollutants such as TDS, cyanide and various other specific ions, in addition to the eleven parameters already being monitored and controlled.

The parameters limited in the guidelines are those which are fairly common to the industry and for which there is existing technology in use in the industry for their removal. The control and monitoring of any additional parameters might be called for on an individual basis to meet water quality standards.

(26) Promulgation is considered to be appropriate provided it is subject to realistic revision as new data becomes available.

The Act provides for periodic review and revisions as appropriate.

(b) Revision of the proposed regulation prior to promulgation.

As a result of public comment and continuing review and evaluation of the proposed regulation by EPA, the following changes have been made in the regulation.

(1) As a result of some changes in the subcategorization (low and high cracking combined to form the new cracking subcategory and the topping subcategory being defined as those refineries without cracking) a reevaluation of the median flows within each subcategory was made. The changes made are as follows: topping from 12 gal/bbl to 20 gal/bbl; cracking from (low) 17 gal/bbl, (high) 21 gal/bbl to 25 gal/bbl; petrochemical from 25 gal/bbl to 30 gal/bbl; lube from 37 gal/bbl to 45 gal/bbl; and integrated from 45 gal/bbl to 48 gal/bbl. The parameter limits which are flow based were adjusted accordingly.

(2) The limits on storm water runoff from tankfields and non-process areas were changed from 15 mg/l of TOC and no sheen to 35 mg/l of TOC and 15 mg/l of oil and grease (both maximums). These limits are set at those same maximum concentrations expected if the run-

off were passed through the treatment plant.

(3) A further subcategorization of the industry was made based on process configuration and size.

(4) Zinc was eliminated as a parameter to be limited industry wide. Further evaluation of the API/EPA Raw Waste Load Survey showed only a small percentage of the industry over the zinc limits set.

(5) The ammonia limits were changed based on the changes in the subcategorization.

(6) The ratio of TOC/BOD₅ was changed from 1.8 to 2.2.

(7) Once-through cooling water was excluded from the production based allocation and a maximum concentration of 5 mg/l of TOC was set.

(8) The daily maximum values were increased to reflect a 99 percent probability of occurrence. This was done to limit the number of technical violations of the permit.

(9) Section 304(b)(1)(B) of the Act provides for "guidelines" to implement the uniform national standards of section 301(b)(1)(A). Thus Congress recognized that some flexibility was necessary in order to take into account the complexity of the industrial world with respect to the practicability of pollution control technology. In conformity with the Congressional intent and in recognition of the possible failure of these regulations to account for all factors bearing on the practicability of control technology, it was concluded that some provision was needed to authorize flexibility in the strict application of the limitations contained in the regulation where required by special circumstances applicable to individual dischargers. Accordingly, a provision allowing flexibility in the application of the limitations representing best practicable control technology currently available has been added to each subpart, to account for special circumstances that may not have been adequately accounted for when these regulations were developed.

(c) *Economic impact.* The changes that were made to the proposed regulations for the petroleum refining category do not substantially affect the initial economic analysis. The changes detailed above reflects a reevaluation of the efficiency of various treatment systems and further subcategorization of the industry to more equitably distribute the economic burden. These revisions, however, do not effect the conclusions of the economic impact study.

(d) *Cost-benefit analysis.* The detrimental effects of the constituents of waste waters now discharged by point sources within the Petroleum Refining point source category are discussed in Section VI of the report entitled "Development Document for Effluent Limitations Guidelines for the Petroleum Refining Point Source Category".

It is not feasible to quantify in economic terms, particularly on a national basis, the costs resulting from the discharge of these pollutants to our Nation's waterways. Nevertheless, as indicated in Section VI, the pollutants discharged have substantial and damaging impacts

on the quality of water and therefore on its capacity to support healthy populations of wildlife, fish and other aquatic wildlife and on its suitability for industrial, recreational and drinking water supply uses.

The total cost of implementing the effluent limitations guidelines includes the direct capital and operating costs of the pollution control technology employed to achieve compliance and the indirect economic and environmental costs identified in Section VIII and in the supplementary report entitled "Economic Analysis of Proposed Effluent Guidelines Petroleum Refining Industry" (December 1973). Implementing the effluent limitations guidelines will substantially reduce the environmental harm which would otherwise be attributable to the continued discharge of polluted waste waters from existing and newly constructed plants in the petroleum refining industry. The Agency believes that the benefits of thus reducing the pollutants discharged justify the associated costs which, though substantial in absolute terms, represent a relatively small percentage of the total capital investment in the industry.

(e) *Solid waste control.* Solid waste control must be considered. The waterborne wastes from the petroleum refining industry may contain a considerable volume of metals in various forms as a part of the suspended solids pollutant. Best practicable control technology and best available control technology as they are known today require disposal of the pollutants removed from waste waters in this industry in the form of solid wastes and liquid concentrates. In some cases these are nonhazardous substances requiring only minimal custodial care. However, some constituents may be hazardous and may require special consideration. In order to ensure long term protection of the environment from these hazardous or harmful constituents, special consideration of disposal sites must be made. All landfill sites where such hazardous wastes are disposed should be selected so as to prevent horizontal and vertical migration of these contaminants to ground or surface waters. In cases where geologic conditions may not reasonably ensure this, adequate precautions (e.g., impervious 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 the legal jurisdiction in which the site is located.

(f) Publication of information on processes, procedures, or operating methods which results in the elimination or reduction of the discharge of pollutants.

In conformance with the requirements of section 304(c) of the Act, a manual entitled, "Development Document for Effluent Limitations Guidelines and New Source Performance Standards for the Petroleum Refining Point Source Category," is being published and will be

available for purchase from the Government Printing Office, Washington, D.C. 20401 for a nominal fee.

(g) *Final rulemaking.* In consideration of the foregoing, 40 CFR Ch. I, Subchapter N is hereby amended by adding a new Part 419, Petroleum Refining Point Source Category, to read as set forth below. An order of the Federal District Court for the District of Columbia entered in "NRDC v. Train" (Civ. No. 1609-73) on November 26, 1973, required that the Administrator sign final effluent limitations guidelines for this industry category by March 15, 1974. That order was subsequently modified on March 15, 1974, and the date for signing extended until April 15, 1974. On the same date the District Court ordered that the effective date for effluent limitations guidelines established by its November 26 order remain applicable and not be affected by the extension in the publication date. The effective date for effluent limitations guidelines for this industry established by the Court's November 26 order is May 12, 1974. Accordingly, good cause is found for the final regulation promulgated as set forth below to be effective on May 12, 1974.

Dated: April 30, 1974.

JOHN QUARLES,
Acting Administrator.

Subpart A—Topping Subcategory

- Sec. 419.10 Applicability; description of the topping subcategory.
- 419.11 Specialized definitions.
- 419.13 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.
- 419.13 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.
- 419.14 [Reserved]
- 419.15 Standards of performance for new sources.
- 419.16 Pretreatment standards for new sources.

Subpart B—Cracking Subcategory

- 419.20 Applicability; description of the cracking subcategory.
- 419.21 Specialized definitions.
- 419.22 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.
- 419.23 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.
- 419.24 [Reserved]
- 419.25 Standards of performance for new sources.
- 419.26 Pretreatment standards for new sources.

Subpart C—Petrochemical Subcategory

- 419.30 Applicability; description of the petrochemical subcategory.
- 419.31 Specialized definitions.
- 419.32 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

- Sec. 419.33 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.
- 419.34 [Reserved]
- 419.35 Standards of performance for new sources.
- 419.36 Pretreatment standards for new sources.
- Subpart D—Lube Subcategory
- 419.40 Applicability; description of the lube subcategory.
- 419.41 Specialized definitions.
- 419.42 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.
- 419.43 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.
- 419.44 [Reserved]
- 419.45 Standards of performance for new sources.
- 419.46 Pretreatment standards for new sources.
- Subpart E—Integrated Subcategory
- 419.50 Applicability; description of the integrated subcategory.
- 419.51 Specialized definitions.
- 419.52 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.
- 419.53 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.
- 419.54 [Reserved]
- 419.55 Standards of performance for new sources.
- 419.56 Pretreatment standards for new sources.

AUTHORITY: Secs. 301, 304 (b) and (c), 306 (b) and (c) and 307(c) of the Federal Water Pollution Control Act, as amended (the Act); 33 U.S.C. 1251, 1311, 1314 (b) and (c), 1316 (b) and (c), and 1317(c); 86 Stat. 816 et seq.; Pub. L. 92-500.

Subpart A—Topping Subcategory

§ 419.10 Applicability; description of the topping subcategory.

The provisions of this subpart are applicable to discharges from any facility which produces petroleum products by the use of topping and catalytic reforming whether or not the facility includes any other process in addition to topping and catalytic reforming. The provisions of this subpart are not applicable to facilities which include thermal processes (coking, visbreaking, etc.) or catalytic cracking.

§ 419.11 Specialized definitions.

For the purpose of this subpart:

(a) Except as provided below, the general definitions, abbreviations and methods of analysis set forth in Part 401 of this chapter shall apply to this subpart.

(b) The term "runoff" shall mean the flow of storm water.

(c) The term "ballast" shall mean the flow of waters, from a ship, which is treated at the refinery.

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(d) The term "feedstock" shall mean the crude oil and natural gas liquids fed to the topping units.

(e) The term "once-through cooling water" shall mean those waters discharged that are used for the purpose of heat removal and that do not come into direct contact with any raw material, intermediate or finished product.

(f) The following abbreviations shall mean: (1) Mgal means one thousand gallons; (2) Mbbl means one thousand barrels (one barrel is equivalent to 42 gallons).

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

In establishing the limitations set forth in this section, EPA took into account all information it was able to collect, develop and solicit with respect to factors (such as age and size of plant, raw materials, manufacturing processes, products produced, treatment technology available, energy requirements and costs) which can affect the industry sub-categorization and effluent levels established. It is, however, possible that data which would affect these limitations have not been available and, as a result these limitations should be adjusted for certain plants in this industry. An individual discharger or other interested person may submit evidence to the Regional Administrator (or to the State, if the State has the authority to issue NPDES permits) that factors relating to the equipment or facilities involved, the process applied, or other such factors related to such discharger are fundamentally different from the factors considered in the establishment of the guidelines. On the basis of such evidence or other available information, the Regional Administrator (or the State) will make a written finding that such factors are or are not fundamentally different for that facility compared to those specified in the Development Document. If such fundamentally different factors are found to exist, the Regional Administrator or the State shall establish for the discharger effluent limitations in the NPDES permit either more or less stringent than the limitations established herein, to the extent dictated by such fundamentally different factors. Such limitations must be approved by the Administrator of the Environmental Protection Agency. The Administrator may approve or disapprove such limitations, specify other limitations, or initiate proceedings to revise these regulations.

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

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed
	Metric units (kilograms per 1,000 m ³ of feedstock)	
BOD ₅	22.7	12.0
TSS.....	13.9	8.2
COD*.....	117	60.3
Oil and grease.....	6.9	3.7
Phenolic compounds.....	.168	.076
Ammonia as N.....	2.81	1.27
Sulfide.....	.149	.068
Total chromium.....	.345	.20
Hexavalent chromium.....	.0071	.0031
pH.....	Within the range 6.0 to 9.0.	
	English units (pounds per 1,000 bbl of feedstock)	
BOD ₅	8.0	4.25
TSS.....	4.9	2.9
COD*.....	41.2	21.3
Oil and grease.....	2.5	1.3
Phenolic compounds.....	.060	.027
Ammonia as N.....	.99	.45
Sulfide.....	.053	.024
Total chromium.....	.122	.071
Hexavalent chromium.....	.0025	.0011
pH.....	Within the range 6.0 to 9.0.	

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed
	Metric units (kilograms per cubic meter of flow)	
BOD ₅	0.018	0.029
TSS.....	.029	.017
COD*.....	.47	.21
Oil and grease.....	.015	.008
pH.....	Within the range 6.0 to 9.0.	
	English units (pounds per 1,000 gal of flow)	
BOD ₅	0.40	0.21
TSS.....	.21	.14
COD*.....	3.1	1.6
Oil and grease.....	.126	.067
pH.....	Within the range 6.0 to 9.0.	

(b) The limits set forth in paragraph (a) of this section are to be multiplied by the following factors to calculate the maximum for any one day and maximum average of daily values for thirty consecutive days.

(1) Size factor.

1,000 barrels feedstock per stream day	Size factor
0 to 49.9.....	1.02
50 to 99.9.....	1.21
100 to 149.9.....	1.44
150 or greater.....	1.57

(2) Process factor

Process configuration	Process factor
1.0 to 3.99.....	0.60
4.0 to 6.99.....	1.00
7.0 to 9.99.....	1.66
10.0 to 12.99.....	2.77
13.0 to 15.0 or greater.....	4.09

(3) See the comprehensive example Subpart D § 419.42(b) (3).

(c) The following allocations constitute the quantity and quality of pollutants or pollutant properties controlled by this paragraph and attributable to runoff and ballast, which may be discharged after the application of best practicable control technology currently available, by a point source subject to the provisions of this subpart, in addition to the discharge allowed by paragraph (b) of this section:

(1) *Runoff*. The allocation allowed for storm runoff flow, as kg/cu m (lb/m gal), shall be based solely on that storm flow (process area runoff) which is treated in the main treatment system. All additional storm runoff (from tank fields and non-process areas), that has been segregated from the main waste stream for discharge, shall not exceed a concentration of 35 mg/1 of TOC or 15 mg/1 of oil and grease when discharged.

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed
	Metric units (kilograms per cubic meter of flow)	
BOD ₅	0.018	0.029
TSS.....	.029	.017
COD*.....	.47	.21
Oil and grease.....	.015	.008
pH.....	Within the range 6.0 to 9.0.	
	English units (pounds per 1,000 gal of flow)	
BOD ₅	0.40	0.21
TSS.....	.21	.14
COD*.....	3.1	1.6
Oil and grease.....	.126	.067
pH.....	Within the range 6.0 to 9.0.	

(2) *Ballast*. The allocation allowed for ballast water flow, as kg/cu m (lb/Mgal), shall be based on those ballast waters treated at the refinery.

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed
	Metric units (kilograms per cubic meter of flow)	
BOD ₅	0.018	0.029
TSS.....	.029	.017
COD*.....	.47	.21
Oil and grease.....	.015	.008
pH.....	Within the range 6.0 to 9.0.	
	English units (pounds per 1,000 gal of flow)	
BOD ₅	0.40	0.21
TSS.....	.21	.14
COD*.....	3.1	1.6
Oil and grease.....	.126	.067
pH.....	Within the range 6.0 to 9.0.	

(d) The quantity and quality of pollutants or pollutant properties controlled by this paragraph, attributable to once-through cooling water, are excluded from the discharge allowed by paragraph (b) of this section. Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg/1.

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

(a) The following limitations establish the quantity or quality of pollut-

* In any case in which the applicant can demonstrate that the chloride ion concentration in the effluent exceeds 1000 mg/1 (1000 ppm), the Regional Administrator may substitute TOC as a parameter in lieu of COD. Effluent limitations for TOC shall be based on effluent data from the plant correlating TOC to BOD₅.

If in the judgment of the Regional Administrator, adequate correlation data are not available, the effluent limitations for TOC shall be established at a ratio of 2.2 to 1 to the applicable effluent limitations on BOD₅.

ants or pollutant properties, controlled by this paragraph, which may be discharged by a point source subject to the provisions of this subpart after application of the best available technology economically achievable:

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed—
	Metric units (kilograms per 1,000 m ³ of feedstock)	
BOD ₅	2.5	2.0
TSS.....	2.4	2.0
COD*.....	10.0	8.0
Oil and grease.....	.50	.40
Phenolic compounds.....	.012	.0020
Ammonia as N.....	.68	.51
Sulfide.....	.055	.035
Total chromium.....	.124	.105
Hexavalent chromium.....	.0026	.0017
pH.....	Within the range 6.0 to 9.0	
	English units (pounds per 1,000 bbl of feedstock)	
BOD ₅	0.92	0.75
TSS.....	.88	.75
COD*.....	3.5	2.8
Oil and grease.....	.18	.14
Phenolic compounds.....	.0043	.0031
Ammonia as N.....	.24	.18
Sulfide.....	.019	.015
Total chromium.....	.044	.037
Hexavalent chromium.....	.00097	.00062
pH.....	Within the range 6.0 to 9.0.	

(b) The limits set forth in paragraph (a) of this section are to be multiplied by the following factors to calculate the maximum for any one day and maximum average of daily values for thirty consecutive days.

(1) Size factor

1,000 barrels of feedstock per steam day	Size factor
0 to 49.9.....	1.02
50 to 99.9.....	1.21
100 to 149.9.....	1.44
150 or greater.....	1.57

(2) Process factor

1.0 to 3.99.....	0.60
4.0 to 6.99.....	1.0
7.0 to 9.99.....	1.66
10.0 to 12.99.....	2.77
13.0 to 15.0 or greater.....	4.09

(3) See the comprehensive example Subpart D § 419.42(b) (3).

(c) The following allocations constitute the quantity and quality of pollutants or pollutant properties controlled by this paragraph, attributable to runoff and ballast, which may be discharged after the application of best available technology economically achievable by a point source subject to the provisions of this subpart. These allocations are in addition to the discharge allowed by paragraph (b) of this section:

(1) *Runoff.* The allocation allowed for storm runoff flow, as kg/cu m (lb/Mgal), shall be based solely on that storm flow

(process area runoff) which is treated in the main treatment system. All additional storm runoff (from tankfields and non-process areas), that has been segregated from the main waste stream for discharge, shall not exceed a concentration of 35 mg/l of TOC or 15 mg/l of oil and grease when discharged.

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed—
	Metric units (kilograms per cubic meter of flow)	
BOD ₅	0.0105	0.0085
TSS.....	.010	.0085
COD*.....	.023	.022
Oil and grease.....	.0020	.0010
pH.....	Within the range 6.0 to 9.0.	
	English units (pounds per 1,000 gal of flow)	
BOD ₅	0.033	0.071
TSS.....	.064	.071
COD*.....	.24	.19
Oil and grease.....	.018	.014
pH.....	Within the range 6.0 to 9.0.	

(2) *Ballast.* The allocation allowed for ballast water flow, as kg/cu m (lb/Mgal), shall be based on those ballast waters treated at the refinery.

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed—
	Metric units (kilograms per cubic meter of flow)	
BOD ₅	0.0105	0.0085
TSS.....	.010	.0085
COD*.....	.023	.020
Oil and grease.....	.0020	.0017
pH.....	Within the range 6.0 to 9.0.	
	English units (pounds per 1,000 gal of flow)	
BOD ₅	0.033	0.071
TSS.....	.081	.071
COD*.....	.23	.23
Oil and grease.....	.018	.014
pH.....	Within the range 6.0 to 9.0.	

* In any case in which the applicant can demonstrate that the chloride ion concentration in the effluent exceeds 1,000 mg/l (1,000 ppm), the Regional Administrator may substitute TOC as a parameter in lieu of COD. Effluent limitations for TOC shall be based on effluent data from the plant correlating TOC to BOD₅.
If in the judgement of the Regional Administrator, adequate correlation data are not available, the effluent limitations for TOC shall be established at a ratio of 2.2 to 1 to the applicable effluent limitations on BOD₅.

(d) The quantity and quality of pollutants or pollutant properties controlled by this paragraph, attributable to once-through cooling water, are excluded from the discharge allowed by paragraph (b) of this section. Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg/l.

§ 419.14 [Reserved]

§ 419.15 Standards of performance for new sources.

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

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed—
	Metric units (kilograms per 1,000 m ³ of feedstock)	
BOD ₅	11.8	6.3
TSS.....	7.3	4.0
COD*.....	61	32
Oil and grease.....	3.6	1.9
Phenolic compounds.....	.083	.043
Ammonia as N.....	2.8	1.3
Sulfide.....	.078	.035
Total chromium.....	.13	.105
Hexavalent chromium.....	.0037	.0017
pH.....	Within the range 6.0 to 9.0.	
	English units (pounds per 1,000 bbl of feedstock)	
BOD ₅	4.2	2.2
TSS.....	2.6	1.5
COD*.....	21.7	11.2
Oil and grease.....	1.3	.70
Phenolic compounds.....	.031	.016
Ammonia as N.....	1.0	.45
Sulfide.....	.027	.012
Total chromium.....	.064	.037
Hexavalent chromium.....	.0013	.00062
pH.....	Within the range 6.0 to 9.0.	

(b) The limits set forth in paragraph (a) of this section are to be multiplied by the following factors to calculate the maximum for any one day and maximum average of daily values for thirty consecutive days.

(1) Size factor

1,000 bbl of feedstock per stream day	Size factor
0 to 49.9.....	1.02
50 to 99.9.....	1.21
100 to 149.9.....	1.44
150 or greater.....	1.57

(2) Process factor

Process configuration	Process factor
1.0 to 3.99.....	0.60
4.0 to 6.99.....	1.00
7.0 to 9.99.....	1.66
10.0 to 12.99.....	2.77
13.0 to 15.0 or greater.....	4.09

(3) See the comprehensive example Subpart D § 419.42(b) (3).

(c) The following allocations constitute the quantity and quality of pollutants or pollutant properties controlled by this paragraph, attributable to runoff and ballast, which may be discharged by a new source subject to the provisions of this subpart. These allocations are in addition to the discharge allowed by paragraph (b) of this section:

(1) **Runoff.** The allocation allowed for storm runoff flow, as kg/cu m (lb/Mgal), shall be based solely on that storm flow (process area runoff) which is treated in the main treatment system. All additional storm runoff (from tankfields and non-process areas), that has been segregated from the main waste stream for discharge, shall not exceed a concentration of 35mg/l of TOC or 15 mg/l of oil and grease when discharged.

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed—
	Metric units (kilograms per cubic meter of flow)	
BOD ₅	0.048	0.028
TSS.....	.029	.017
COD ¹37	.19
Oil and grease.....	.015	.0080
pH.....	Within the range 6.0 to 9.0.	
	English units (pounds per 1,000 gal of flow)	
BOD ₅	0.40	0.21
TSS.....	.24	.14
COD ¹	3.1	1.6
Oil and grease.....	.126	.067
pH.....	Within the range 6.0 to 9.0.	

(2) **Ballast.** The allocation allowed for ballast water flow, as kg/cu m (lb/Mgal), shall be based on those ballast waters treated at the refinery.

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed—
	Metric units (kilograms per cubic meter of flow)	
BOD ₅	0.048	0.028
TSS.....	.029	.017
COD ¹47	.24
Oil and grease.....	.015	.008
pH.....	Within the range 6.0 to 9.0.	
	English units (pounds per 1,000 gal of flow)	
BOD ₅	0.40	0.21
TSS.....	.24	.14
COD ¹	3.9	2.0
Oil and grease.....	.126	.067
pH.....	Within the range 6.0 to 9.0.	

¹ In any case in which the applicant can demonstrate that the chloride ion concentration in the effluent exceeds 1,000 mg/l (1,000 ppm), the Regional Administrator may substitute TOC as a parameter in lieu of COD. Effluent limitations for TOC shall be based on effluent data from the plant correlating TOC to BOD₅.

If in the judgement of the Regional Administrator, adequate correlation data are not available, the effluent limitations for TOC shall be established at a ratio of 2.2 to 1 to the applicable effluent limitations on BOD₅.

(d) The quantity and quality of pollutants or pollutant properties controlled by this paragraph, attributable to once-

through cooling water, are excluded from the discharge allowed by paragraph (b) of this section. Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg/l.

§ 419.16 Pretreatment standards for new sources.

The pretreatment standards under section 307(c) of the Act for a source within the topping subcategory, which is a 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 the navigable waters), shall be the standard set forth in Part 128 of this chapter, except that, for the purpose of this section, § 128.133 of this chapter shall be amended to read as follows: "In addition to the prohibitions set forth in § 128.131 of this chapter, the pretreatment standard for incompatible pollutants introduced into a publicly owned treatment works shall be the standard of performance for new sources specified in § 419.15; *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 in stringency for that pollutant."

Subpart B—Cracking Subcategory

§ 419.20 Applicability; description of the cracking subcategory.

The provisions of this subpart are applicable to all discharges from any facility which produces petroleum products by the use of topping and cracking, whether or not the facility includes any process in addition to topping and cracking. The provisions of this subpart are not applicable however, to facilities which include the processes specified in Subparts C, D, or E of this part.

§ 419.21 Specialized definitions.

For the purpose of this subpart:

(a) Except as provided below, the general definitions, abbreviations and methods of analysis set forth in Part 401 of this chapter shall apply to this subpart.

(b) The term "runoff" shall mean the flow of storm water.

(c) The term "ballast" shall mean the flow of waters, from a ship, which is to be treated at the refinery.

(d) The term "feedstock" shall mean the crude oil and natural gas liquids fed to the topping units.

(e) The term "once-through cooling water" shall mean those waters discharged that are used for the purpose of heat removal and that do not come into

direct contact with any raw material, intermediate or finished product.

(f) The following abbreviations shall mean: (1) Mgal means one thousand gallons; (2) Mbbl means one thousand barrels (one barrel is equivalent to 42 gallons).

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

In establishing the limitations set forth in this section, EPA took into account all information it was able to collect, develop and solicit with respect to factors (such as age and size of plant, raw materials, manufacturing processes, products produced, treatment technology available, energy requirements and costs) which can affect the industry sub-categorization and effluent levels established. It is, however, possible that data which would affect these limitations have not been available and, as a result, these limitations should be adjusted for certain plants in this industry. An individual discharger or other interested person may submit evidence to the Regional Administrator (or to the State, if the State has the authority to issue NPDES permits) that factors relating to the equipment or facilities involved, the process applied, or other such factors related to such discharger are fundamentally different from the factors considered in the establishment of the guidelines. On the basis of such evidence or other available information, the Regional Administrator (or the State) will make a written finding that such factors are or are not fundamentally different for that facility compared to those specified in the Development Document. If such fundamentally different factors are found to exist, the Regional Administrator or the State shall establish for the discharger effluent limitations in the NPDES permit either more or less stringent than the limitations established herein to the extent dictated by such fundamentally different factors. Such limitations must be approved by the Administrator of the Environmental Protection Agency. The Administrator may approve or disapprove such limitations, specify other limitations, or initiate proceedings to revise these regulations.

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

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed—
	Metric units (kilograms per 1,000 m ³ of feedstock)	
BOD ₅	28.2	15.6
TSS.....	17.1	10.2
COD ¹	210	109
Oil and grease.....	8.4	4.5
Phenolic compounds.....	.21	.10
Ammonia as N.....	18.8	8.5
Sulfide.....	.18	.082
Total chromium.....	.43	.25
Hexavalent chromium.....	.0087	.0040
pH.....	Within the range 6.0 to 9.0.	
	English units (pounds per 1,000 bbl of feedstock)	
BOD ₅	9.9	5.5
TSS.....	6.1	3.6
COD ¹	74	33.4
Oil and grease.....	3.0	1.6
Phenolic compounds.....	.074	.033
Ammonia as N.....	6.6	3.0
Sulfide.....	.065	.029
Total chromium.....	.15	.068
Hexavalent chromium.....	.0031	.0014
pH.....	Within the range 6.0 to 9.0.	

¹ In any case in which the applicant can demonstrate that the chloride ion concentration in the effluent exceeds 1,000 mg/l (1,000 ppm), the Regional Administrator may substitute TOC as a parameter in lieu of COD. Effluent limitations for TOC shall be based on effluent data from the plant correlating TOC to BOD₅.

If in the judgement of the Regional Administrator, adequate correlation data are not available, the effluent limitations for TOC shall be established at a ratio of 2.2 to 1 to the applicable effluent limitations on BOD₅.

(b) The limits set forth in paragraph (a) of this section are to be multiplied by the following factors to calculate the maximum for any one day and maximum average of daily values for thirty consecutive days.

1,000 barrels of feedstock per stream day	Size factor
0 to 34.9.....	0.89
35 to 74.9.....	1.00
75 to 109.9.....	1.14
110 to 149.9.....	1.31
150 or greater.....	1.41

(2) Process factor

Process configuration	Process factor
1.5 to 3.49.....	0.58
3.50 to 5.49.....	0.81
5.50 to 7.49.....	1.13
7.50 to 9.49.....	1.60
9.50 to 10.50 or greater.....	1.87

(3) See the comprehensive example Subpart D § 419.42(b) (3).

(c) The provisions of § 419.12(c) (1) and (2) apply to discharges of process waste water pollutants attributable to storm water runoff and ballast water by a point source subject to the provisions of this subpart.

(d) The quantity and quality of pollutants or pollutant properties controlled by this paragraph, attributable to once-through cooling water, are excluded from

the discharge allowed by paragraph (b) of this section. Once-through cooling water may be discharged a total organic carbon concentration not to exceed 5 mg/l.

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

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

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed—
	Metric units (kilograms per 1,000 m ³ of feedstock)	
BOD ₅	3.4	2.7
TSS.....	3.2	2.7
COD ¹	19.2	15.4
Oil and grease.....	.68	.51
Phenolic compounds.....	.016	.011
Ammonia as N.....	4.6	3.5
Sulfide.....	.075	.048
Total chromium.....	.16	.14
Hexavalent chromium.....	.0035	.0022
pH.....	Within the range 6.0 to 9.0.	
	English units (pounds per 1,000 bbl of feedstock)	
BOD ₅	1.2	0.99
TSS.....	1.2	.99
COD ¹	6.8	5.4
Oil and grease.....	.21	.19
Phenolic compounds.....	.0035	.0030
Ammonia as N.....	1.6	1.2
Sulfide.....	.023	.017
Total chromium.....	.035	.030
Hexavalent chromium.....	.0013	.0008
pH.....	Within the range 6.0 to 9.0.	

¹ In any case in which the applicant can demonstrate that the chloride ion concentration in the effluent exceeds 1,000 mg/l (1,000 ppm), the Regional Administrator may substitute TOC as a parameter in lieu of COD. Effluent limitations for TOC shall be based on effluent data from the plant correlating TOC to BOD₅.

If in the judgement of the Regional Administrator, adequate correlation data are not available, the effluent limitations for TOC shall be established at a ratio of 2.2 to 1 to the applicable effluent limitations on BOD₅.

(b) The limits set forth in paragraph (a) of this section are to be multiplied by the following factors to calculate the maximum average of daily values for thirty consecutive days.

1,000 barrels of feedstock per stream day	Size factor
0 to 34.9.....	0.89
35 to 74.9.....	1.00
75 to 109.9.....	1.14
110 to 149.9.....	1.31
150 or greater.....	1.41

(2) Process factor

Process configuration	Process factor
1.5 to 3.49.....	0.58
2.50 to 5.49.....	0.81
5.50 to 7.49.....	1.13
7.50 to 9.49.....	1.60
9.50 to 10.50 or greater.....	1.87

(3) See the comprehensive example Subpart D § 419.42(b) (3).

(c) The provisions of § 419.13(c) (1) and (2) apply to discharges of process waste water pollutants attributable to storm water runoff and ballast water by a point source subject to the provisions of this subpart.

(d) The quantity and quality of pollutants or pollutant properties controlled by this paragraph, attributable to once-through cooling water, are excluded from the discharge allowed by paragraph (b) of this section. Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg/l.

§ 419.24 [Reserved]

§ 419.25 Standards of performance for new sources.

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

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed—
	Metric units (kilograms per 1,000 m ³ of feedstock)	
BOD ₅	16.3	8.7
TSS.....	9.9	5.8
COD ¹	115	61
Oil and grease.....	4.8	2.6
Phenolics compounds.....	.119	.038
Ammonia as N.....	15.8	8.6
Sulfide.....	.103	.043
Total chromium.....	.21	.14
Hexavalent chromium.....	.0030	.0022
pH.....	Within the range 6.0 to 9.0.	
	English units (pounds per 1,000 bbl of feedstock)	
BOD ₅	5.8	3.1
TSS.....	3.5	2.0
COD ¹	41.5	21
Oil and grease.....	1.7	.93
Phenolics compounds.....	.042	.020
Ammonia as N.....	6.6	3.0
Sulfide.....	.037	.017
Total chromium.....	.084	.049
Hexavalent chromium.....	.0015	.0008
pH.....	Within the range 6.0 to 9.0.	

¹ In any case in which the applicant can demonstrate that the chloride ion concentration in the effluent exceeds 1,000 mg/l (1,000 ppm), the Regional Administrator may substitute TOC as a parameter in lieu of COD. Effluent limitations for TOC shall be based on effluent data from the plant correlating TOC to BOD₅.

If in the judgement of the Regional Administrator, adequate correlation data are not available, the effluent limitations for TOC shall be established at a ratio of 2.2 to 1 to the applicable effluent limitations on BOD₅.

(b) The limits set forth in paragraph (a) of this section are to be multiplied by the following factors to calculate the maximum for any one day and maximum average of daily values for thirty consecutive days.

(1) Size factor

1,000 barrels of feedstock per stream day	Size factor
0 to 34.9	0.89
35 to 74.9	1.00
75 to 109.9	1.14
110 to 149.9	1.31
150 or greater	1.41

(2) Process factor

Process configuration	Process factor
1.5 to 3.49	0.58
3.50 to 5.49	.81
5.50 to 7.49	1.13
7.50 to 9.49	1.60
9.50 to 10.50 or greater	1.87

(3) See the comprehensive example Subpart D § 419.42(b) (3).

(c) The provisions of § 419.15(c) (1) and (2) apply to discharges of process waste water pollutants attributable to storm water runoff and ballast water by a point source subject to the provisions of this subpart.

(d) The quantity and quality of pollutants or pollutant properties controlled by this paragraph, attributable to once-through cooling water, are excluded from the discharge allowed by paragraph (b) of this section. Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg/l.

§ 419.26 Pretreatment standards for new sources.

The pretreatment standards under section 307(c) of the Act for a source within the cracking subcategory, which is a 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 the navigable waters), shall be the standard set forth in Part 128 of this chapter, except that, for the purpose of this section, § 128.133 of this chapter shall be amended to read as follows: "In addition to the prohibitions set forth in § 128.131 of this chapter, the pretreatment standard for incompatible pollutants introduced into a publicly owned treatment works shall be the standard of performance for new sources specified in § 419.25: *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 in stringency for that pollutant."

Subpart C—Petrochemical Subcategory

§ 419.30 Applicability; description of the petrochemical subcategory.

The provisions of this subpart are applicable to all discharges from any facility which produces petroleum products by the use of topping, cracking and petro-

chemical operations, whether or not the facility includes any process in addition to topping, cracking and petrochemical operations. The provisions of this subpart shall not be applicable however, to facilities which include the processes specified in Subparts D or E of this part.

§ 419.31 Specialized definitions.

For the purpose of this subpart:

(a) Except as provided below, the general definitions, abbreviations and methods of analysis set forth in Part 401 of this chapter shall apply to this subpart.

(b) The term "runoff" shall mean the flow of storm water.

(c) The term "ballast" shall mean the flow of waters, from a ship, which is to be treated at the refinery.

(d) The term "feedstock" shall mean the crude oil and natural gas liquids fed to the topping units.

(e) The term "once-through cooling water" shall mean those waters discharged that are used for the purpose of heat removal and that do not come into direct contact with any raw material, intermediate or finished product.

(f) The term "petrochemical operations" shall mean the production of second generation petrochemicals (i.e. alcohols, ketones, cumene, styrene, etc.) or first generation petrochemicals and isomerization products (i.e. BTX, olefins, cyclohexane, etc.) when 15 percent or more of refinery production is as first generation petrochemicals and isomerization products.

(g) The following abbreviations shall mean: (1) Mgal means one thousand gallons; (2) Mbbl means one thousand barrels (one barrel is equivalent to 42 gallons).

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

In establishing the limitations set forth in this section, EPA took into account all information it was able to collect, develop and solicit with respect to factors (such as age and size of plant, raw materials, manufacturing processes, products produced, treatment technology available, energy requirements and costs) which can affect the industry subcategory and effluent levels established. It is, however, possible that data which would affect these limitations have not been available and, as a result, these limitations should be adjusted for certain plants in this industry. An individual discharger or other interested person may submit evidence to the Regional Administrator (or to the State, if the State has the authority to issue NPDES permits) that factors relating to the equipment or facilities involved, the process applied, or other such factors related to such discharger are fundamentally different from the factors considered in the establishment of the guidelines. On the basis of such evidence or other available information, the Regional Administrator (or the State) will make a written finding that such fac-

tors are or are not fundamentally different for that facility compared to those specified in the Development Document. If such fundamentally different factors are found to exist, the Regional Administrator or the State shall establish for the discharger effluent limitations in the NPDES permit either more or less stringent than the limitations established herein, to the extent dictated by such fundamentally different factors. Such limitations must be approved by the Administrator of the Environmental Protection Agency. The Administrator may approve or disapprove such limitations, specify other limitations, or initiate proceedings to revise these regulations.

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

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed
	Metric units (kilograms per 1,000 m ³ of feedstock)	
BOD ₅	34.6	18.4
TSS	20.0	12.0
COD ¹	210	109
Oil and grease	11.1	6.0
Phenolic compounds	.25	.120
Ammonia as N	23.4	10.0
Sulfide	.22	.099
Total chromium	.62	.30
Hexavalent chromium	.0115	.0051
pH	Within the range 6.0 to 9.0.	
	English units (pounds per 1,000 bbl of feedstock)	
BOD ₅	12.1	6.6
TSS	7.3	4.25
COD ¹	74	34.4
Oil and grease	3.0	2.1
Phenolic compounds	.633	.6125
Ammonia as N	8.25	3.8
Sulfide	.078	.633
Total chromium	.183	.107
Hexavalent chromium	.0010	.0018
pH	Within the range 6.0 to 9.0.	

¹ In any case in which the applicant can demonstrate that the chloride ion concentration in the effluent exceeds 1,000 mg/l (1,000 ppm), the Regional Administrator may substitute TOC as a parameter in lieu of COD. Effluent limitations for TOC shall be based on effluent data from the plant correlating TOC to BOD₅.

If in the judgement of the Regional Administrator, adequate correlation data are not available, the effluent limitations for TOC shall be established at a ratio of 2.2 to 1 to the applicable effluent limitations on BOD₅.

(b) The limits set forth in paragraph (a) of this section are to be multiplied by the following factors to calculate the maximum for any one day and maximum average of daily values for thirty consecutive days.

(1) Size factor

1,000 barrels of feedstock per steam day	Size factor
0 to 49.9	0.73
50 to 99.9	.87
100 to 149.9	1.04
150 or greater	1.13

(2) Process factor

Process configuration	Process factor
3.25 to 4.74	0.67
4.75 to 6.74	.91
6.75 to 8.74	1.27
8.75 to 10.25 or greater	1.64

(3) See the comprehensive example Subpart D § 419.42(b) (3).

(c) The provisions of § 419.12(c) (1) and (2) apply to discharges of process waste water pollutants attributable to storm water runoff and ballast water by a point source subject to the provisions of this subpart.

(d) The quantity and quality of pollutants or pollutant properties controlled by this paragraph, attributable to once-through cooling water, are excluded from the discharge allowed by paragraph (b) of this section. Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg/l.

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

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

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed—
	Metric units (kilograms per 1,000 m ³ of feedstock)	
BOD ₅	4.6	3.7
TSS	4.4	3.7
COD ¹	22	17
Oil and grease	.90	.72
Phenolic compounds	.022	.015
Ammonia as N	5.6	4.2
Sulfide	.069	.063
Total chromium	.22	.19
Hexavalent chromium	.0048	.0031
pH	Within the range 6.0 to 9.0.	
	English units (pounds per 1,000 bbl of feedstock)	
BOD ₅	1.7	1.3
TSS	1.6	1.3
COD ¹	7.6	6.1
Oil and grease	.32	.26
Phenolic compounds	.0077	.0054
Ammonia as N	2.0	1.5
Sulfide	.035	.022
Total chromium	.080	.063
Hexavalent chromium	.0017	.0011
pH	Within the range 6.0 to 9.0.	

¹ In any case in which the applicant can demonstrate that the chloride ion concentration in the effluent exceeds 1,000 mg/l (1,000 ppm), the Regional Administrator may substitute TOC as a parameter in lieu of COD. Effluent limitations for TOC shall be based on effluent data from the plant correlating TOC to BOD₅.

If in the judgement of the Regional Administrator, adequate correlation data are not available, the effluent limitations for TOC shall be established at a ratio of 2.2 to 1 to the applicable effluent limitations on BOD₅.

(b) The limits set forth in paragraph (a) of this section are to be multiplied by the following factors to calculate the maximum for any one day and maximum

average of daily values for thirty consecutive days.

(1) Size factor	Size factor
1,000 bbl of feedstock per stream day	
0 to 49.9	0.73
50 to 99.9	.87
100 to 149.9	1.13
150 or greater	1.13

(2) Process factor	Process factor
Process configuration	
3.25 to 4.74	0.67
4.75 to 6.74	.91
6.75 to 8.74	1.27
8.75 to 10.25 or greater	1.64

(3) See the comprehensive example Subpart D § 419.42(b) (3).

(c) The provisions of § 419.13(c) (1) and (2) apply to discharges of process waste water pollutants attributable to storm water runoff and ballast water by a point source subject to the provision of this subpart.

(d) The quantity and quality of pollutants or pollutant properties controlled by this paragraph, attributable to once-through cooling water, are excluded from the discharge allowed by paragraph (b) of this section. Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg/l.

§ 419.34 [Reserved]

§ 419.35 Standards of performance for new sources.

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

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed—
	Metric units (kilograms per 1,000 m ³ of feedstock)	
BOD ₅	21.8	11.0
TSS	13.1	7.7
COD ¹	133	62
Oil and grease	6.0	3.5
Phenolic compounds	.158	.077
Ammonia as N	23.4	19.7
Sulfide	.140	.033
Total chromium	.32	.19
Hexavalent chromium	.0062	.0031
pH	Within the range 6.0 to 9.0.	
	English units (pounds per 1,000 bbl of feedstock)	
BOD ₅	7.7	4.1
TSS	4.6	2.7
COD ¹	47	21
Oil and grease	2.4	1.3
Phenolic compounds	.056	.027
Ammonia as N	8.3	3.8
Sulfide	.059	.022
Total chromium	.116	.063
Hexavalent chromium	.0021	.0011
pH	Within the range 6.0 to 9.0.	

¹ In any case in which the applicant can demonstrate that the chloride ion concentration in the effluent exceeds 1,000 mg/l (1,000 ppm), the Regional Administrator may substitute TOC as a parameter in lieu of COD. Effluent limitations for TOC shall be based on effluent data from the plant correlating TOC to BOD₅.

If in the judgement of the Regional Administrator, adequate correlation data are not available, the effluent limitations for TOC shall be established at a ratio of 2.2 to 1 to the applicable effluent limitations on BOD₅.

(b) The limits set forth in paragraph (a) of this section are to be multiplied by the following factors to calculate the maximum for any one day and maximum average of daily values for thirty consecutive days.

(1) Size factor	Size factor
1,000 barrels of feedstock per stream day	
0 to 49.9	0.73
50 to 99.9	.87
100 to 149.9	1.04
150 or greater	1.13

(2) Process factor	Process factor
Process configuration	
3.25 to 4.74	0.67
4.75 to 6.74	.91
6.75 to 8.74	1.27
8.75 to 10.25 or greater	1.64

(3) See the comprehensive example Subpart D § 419.42(b) (3).

(c) The provisions of § 419.15(c) (1) and (2) apply to discharges of process waste water pollutants attributable to storm water runoff and ballast water by a point source subject to the provisions of this subpart.

(d) The quantity and quality of pollutants or pollutant properties controlled by this paragraph, attributable to once-through cooling water, are excluded from the discharge allowed by paragraph (b) of this section. Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg/l.

§ 419.36 Pretreatment standards for new sources.

The pretreatment standards under section 307(c) of the Act for a source within the petrochemical subcategory, which is a 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 the navigable waters), shall be the standard set forth in Part 128 of this chapter, except that, for the purpose of this section, § 128.133 of this chapter shall be amended to read as follows: "In addition to the prohibitions set forth in § 128.131 of this chapter, the pretreatment standard for incompatible pollutants introduced into a publicly owned treatment works shall be the standard of performance for new sources specified in § 419.35: *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 in stringency for that pollutant."

Subpart D—Lube Subcategory

§ 419.40 Applicability; description of the lube subcategory.

The provisions of this subpart are applicable to all discharges from any facility which produces petroleum products by the use of topping, cracking and lube oil manufacturing processes, whether or not the facility includes any process in addition to topping, cracking and lube oil manufacturing processes. The provisions

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of this subpart are not applicable however, to facilities which include the processes specified in Subparts C and E of this part.

§ 419.41 Specialized definitions.

For the purpose of this subpart:

(a) Except as provided below, the general definitions, abbreviations and methods of analysis set forth in part 401 of this Chapter shall apply to this subpart.

(b) The term "runoff" shall mean the flow of storm water.

(c) The term "ballast" shall mean the flow of waters, from a ship, which is to be treated at the refinery.

(d) The term "feedstock" shall mean the crude oil and natural gas liquids fed to the topping units.

(e) The term "once-through cooling water" shall mean those waters discharged that are used for the purpose of heat removal and that do not come into direct contact with any raw material, intermediate or finished product.

(f) The following abbreviations shall mean: (1) Mgal means one thousand gallons; (2) Mbbl means one thousand barrels (one barrel is equivalent to 42 gallons).

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

In establishing the limitations set forth in this section, EPA took into account all information it was able to collect, develop and solicit with respect to factors (such as age and size of plant, raw materials, manufacturing processes, products produced, treatment technology available, energy requirements and costs) which can affect the industry sub-categorization and effluent levels established. It is, however, possible that data which would affect these limitations have not been available and, as a result, these limitations should be adjusted for certain plants in this industry. An individual discharger or other interested person may submit evidence to the Regional Administrator (or to the State, if the State has the authority to issue NPDES permits) that factors relating to the equipment or facilities involved, the process applied, or other such factors related to such discharger are fundamentally different from the factors considered in the establishment of the guidelines. On the basis of such evidence or other available information, the Regional Administrator (or the State) will make a written finding that such factors are or are not fundamentally different for that facility compared to those specified in the Development Document. If such fundamentally different factors are found to exist, the Regional Administrator or the State shall establish for the discharger effluent limitations in the NPDES permit either more or less stringent than the limitations established herein, to the extent dictated by such fundamentally different factors. Such limitations must be approved by the Administrator of the Environmental Protection Agency. The Administrator

may approve or disapprove such limitations, specify other limitations, or initiate proceedings to revise these regulations.

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

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed—
	Metric units (kilograms per 1,000 m ³ of feedstock)	
BOD ₅	50.6	25.8
TSS.....	31.3	18.4
COD ¹	360	187
Oil and grease.....	16.2	8.5
Phenolic compounds.....	.38	.184
Ammonia as N.....	23.4	10.6
Sulfide.....	.33	.150
Total chromium.....	.77	.45
Hexavalent chromium.....	.017	.0076
pH.....	Within the range 6.0 to 9.0.	
	English units (pounds per 1,000 bbl of feedstock)	
BOD ₅	17.9	9.1
TSS.....	11.0	6.5
COD ¹	127	66
Oil and grease.....	5.7	3.0
Phenolic compounds.....	.133	.065
Ammonia as N.....	8.3	3.8
Sulfide.....	.118	.053
Total chromium.....	.273	.160
Hexavalent chromium.....	.0059	.0027
pH.....	Within the range 6.0 to 9.0.	

¹ In any case in which the applicant can demonstrate that the chloride ion concentration in the effluent exceeds 1,000 mg/l (1,000 ppm), the Regional Administrator may substitute TOC as a parameter in lieu of COD. Effluent limitations for TOC shall be based on effluent data from the plant correlating TOC to BOD₅.
If in the judgement of the Regional Administrator, adequate correlation data are not available, the effluent limitations for TOC shall be established at a ratio of 2.2 to 1 to the applicable effluent limitations on BOD₅.

EXAMPLE.—Lube refinery 125 1,000 bbl per stream day throughput

Process	Capacity (1,000 bbl per stream day)	Capacity relative to throughput	Weighting factor	Processing configuration
Crude:				
Atm.....	125	1		
Vacuum.....	60	.48		
Desalting.....	125	1		
Total.....		2.48	×	1 = 2.49
Cracking—FGC.....	41	.328		
Hydrocracking.....	20	.160		
Total.....		.488	×	0 = 2.03
Lubes.....	5.3	.042		
4.0.....	4.0	.032		
4.9.....	4.9	.039		
Total.....		.113	×	13 = 1.47
Asphalt.....	4.0	0.032	×	12 = .39
Refinery process configuration				= 7.20

NOTES

See table § 419.42(b)(2) for process factor. Process factor=0.88.
See table § 419.42(b)(1) for size factor for 125 1,000 bbl per stream day lube refinery. Size factor=0.53.
To calculate the limits for each parameter, multiply the limit § 419.42(a) by both the process factor and size factor.
BOD₅ limit (maximum for any 1 day)=11.8×0.88×0.53=9.7 lb. per 1,000 bbl of feedstock.

(b) The limits set forth in paragraph (a) of this section are to be multiplied by the following factors to calculate the maximum for any one day and maximum average of daily values for thirty consecutive days.

(1) Size factor

1,000 barrels of feedstock per steam day	Size factor
30 to 69.9.....	0.71
70 to 109.9.....	.81
110 to 149.9.....	.93
150 to 199.9.....	1.09
200 or greater.....	1.10

(2) Process factor

Process configuration	Process factor
6.0 or less to 8.0.....	0.88
8.0 to 9.99.....	1.23
10.0 to 11.99.....	1.74
12.0 to 14.0 or greater.....	2.44

(3) Example of the application of the above factors.

Calculation of the process configuration		
Process category	Processes Included	Weighting factor
Crude.....	Atm. crude distillation..... Vacuum crude distillation. Desalting.	1
Cracking and coking.....	Fluid cat. cracking..... Vis-breaking. Thermal cracking. Moving bed cat. cracking. Hydrocracking. Fluid coking. Delayed coking.	0
Lube.....	Further defined in the development document.	13
Asphalt.....	Asphalt production..... Asphalt oxidation. Asphalt emulsifying.	12

(c) The provisions of § 419.12(c) (1) and (2) apply to discharges of process waste water pollutants attributable to storm water runoff and ballast water by a point source subject to the provisions of this subpart.

(d) The quantity and quality of pollutants or pollutant properties controlled by this paragraph, attributable to once-through cooling water, are excluded from the discharge allowed by paragraph (b) of this section. Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg/l.

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

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

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed—
	Metric units (kilograms per 1,000 m ³ of feedstock)	
BOD ₅	7.8	6.3
TSS.....	7.4	6.3
COD ¹	40	32
Oil and grease.....	1.4	1.1
Phenolic compounds.....	.034	.024
Ammonia as N.....	5.6	4.2
Sulfide.....	.16	.10
Total chromium.....	.36	.31
Hexavalent chromium.....	.0081	.0052
pH.....	Within the range 6.0 to 9.0.	
	English units (pounds per 1,000 bbl of feedstock)	
BOD ₅	2.7	2.2
TSS.....	2.6	2.2
COD ¹	13.8	11.0
Oil and grease.....	.50	.40
Phenolic compounds.....	.012	.0057
Ammonia as N.....	2.0	1.5
Sulfide.....	.055	.035
Total chromium.....	.13	.11
Hexavalent chromium.....	.0029	.0018
pH.....	Within the range 6.0 to 9.0.	

¹ In any case in which the applicant can demonstrate that the chloride ion concentration in the effluent exceeds 1,000 mg/l (1,000 ppm), the Regional Administrator may substitute TOC as a parameter in lieu of COD. Effluent limitations for TOC shall be based on effluent data from the plant correlating TOC to BOD₅.

If in the judgement of the Regional Administrator, adequate correlation data are not available, the effluent limitations for TOC shall be established at a ratio of 2.2 to 1 to the applicable effluent limitations on BOD₅.

(b) The limits set forth in paragraph (a) of this section are to be multiplied by the following factors to calculate the maximum for any one day and maximum average of daily values for thirty consecutive days.

(1) Size factor

1,000 barrels of feedstock per stream day	Size factor
30 to 69.9.....	0.71
70 to 109.9.....	.81
110 to 149.9.....	.93
150 to 199.9.....	1.09
200 or greater.....	1.19

(2) Process factor

Process configuration	Process factor
6.0 or less to 7.99.....	0.88
8.0 to 9.99.....	1.23
10.0 to 11.99.....	1.74
12.0 to 14.0 or greater.....	2.44

(3) See the comprehensive example Subpart D § 419.42(b) (3).

(c) The provisions of § 419.13(c) (1) and (2) apply to discharges of process waste water pollutants attributable to storm water runoff and ballast water by a point source subject to the provisions of this subpart.

(d) The quantity and quality of pollutants or pollutant properties controlled by this paragraph, attributable to once-through cooling water, are excluded from the discharge allowed by paragraph (b) of this section. Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg/l.

§ 419.44 [Reserved]

§ 419.45 Standards of performance for new sources.

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

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed—
	Metric units (kilograms per 1,000 m ³ of feedstock)	
BOD ₅	34.0	18.4
TSS.....	20.6	12.1
COD ¹	245	156
Oil and grease.....	10.5	5.0
Phenolic compounds.....	.25	.12
Ammonia as N.....	23.4	10.7
Sulfide.....	.220	.10
Total chromium.....	.52	.31
Hexavalent chromium.....	.0115	.0032
pH.....	Within the range 6.0 to 9.0.	
	English units (pounds per 1,000 bbl of feedstock)	
BOD ₅	12.2	6.5
TSS.....	7.3	4.3
COD ¹	57	45
Oil and grease.....	3.8	2.0
Phenolic compounds.....	.069	.043
Ammonia as N.....	8.3	3.8
Sulfide.....	.073	.035
Total chromium.....	.159	.105
Hexavalent chromium.....	.0050	.0018
pH.....	Within the range 6.0 to 9.0.	

¹ In any case in which the applicant can demonstrate that the chloride ion concentration in the effluent exceeds 1,000 mg/l (1,000 ppm), the Regional Administrator may substitute TOC as a parameter in lieu of COD. Effluent limitations for TOC shall be based on effluent data from the plant correlating TOC to BOD₅.

If in the judgement of the Regional Administrator, adequate correlation data are not available, the effluent limitations for TOC shall be established at a ratio of 2.2 to 1 to the applicable effluent limitations on BOD₅.

(b) The limits set forth in paragraph (a) of this section are to be multiplied by the following factors to calculate the

maximum for any one day and maximum average of daily values for thirty consecutive days.

(1) Size factor

1,000 barrels of feedstock per steam day	Size factor
30 to 69.9.....	0.71
70 to 109.9.....	.81
110 to 149.9.....	.93
150 to 199.9.....	1.09
200 or greater.....	1.19

(2) Process factor

Process configuration	Process factor
6.0 or less to 7.99.....	0.88
8.0 to 9.99.....	1.23
10.0 to 11.99.....	1.74
12.0 or greater.....	2.44

(3) See the comprehensive example Subpart D § 419.42(b) (3).

(c) The provisions of § 419.15(c) (1) and (2) apply to discharges of process waste water pollutants attributable to storm water runoff and ballast water by a point source subject to the provision of this subpart.

(d) The quantity and quality of pollutants or pollutant properties controlled by this paragraph, attributable to once-through cooling water, are excluded from the discharge allowed by paragraph (b) of this section. Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg/l.

§ 419.46 Pretreatment standards for new sources.

The pretreatment standards under section 307(c) of the Act for a source within the lube subcategory, which is a 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 the navigable waters), shall be the standard set forth in Part 128 of this chapter, except that, for the purpose of this section, § 128.133 of this chapter shall be amended to read as follows: "In addition to the prohibitions set forth in § 128.131 of this chapter, the pretreatment standard for incompatible pollutants introduced into a publicly owned treatment works shall be the standard of performance for new sources specified in § 419.45: *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 in stringency for that pollutant."

Subpart E—Integrated Subcategory

§ 419.50 Applicability; description of the integrated subcategory.

The provisions of this subpart are applicable to all discharges resulting from any facility which produces petroleum products by the use of topping, cracking, lube oil manufacturing processes, and petrochemical operations, whether or not

the facility includes any process in addition to topping, cracking, lube oil manufacturing processes and petrochemical operations.

§ 419.51 Specialized definitions.

For the purpose of this subpart:
 (a) Except as provided below, the general definitions, abbreviations and methods of analysis set forth in Part 401 of this chapter shall apply to this subpart.
 (b) The term "runoff" shall mean the flow of storm water.
 (c) The term "ballast" shall mean the flow of waters, from a ship, which is to be treated at the refinery.
 (d) The term "feedstock" shall mean the crude oil and natural gas liquids fed to the topping units.
 (e) The term "once-through cooling water" shall mean those waters discharged that are used for the purpose of heat removal and that do not come into direct contact with any raw material, intermediate or finished product.
 (f) The term "petrochemical operations" shall mean the production of second generation petrochemicals (i.e., alcohols, ketones, cumene, styrene, etc.) or first generation petrochemicals and isomerization products (i.e., BTX, olefins, cyclohexane, etc.) when 15% or more of refinery production is as first generation petrochemicals and isomerization products.

(g) The following abbreviations shall mean: (1) Mgal means one thousand gallons; (2) Mbbbl means one thousand barrels (one barrel is equivalent to 42 gallons).

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

In establishing the limitations set forth in this section, EPA took into account all information it was able to collect, develop and solicit with respect to factors (such as age and size of plant, raw materials, manufacturing processes, products produced, treatment technology available, energy requirements and costs) which can affect the industry subcategorization and effluent levels established. It is, however, possible that data which would affect these limitations have not been available and, as a result, these limitations should be adjusted for certain plants in this industry. An individual discharger or other interested person may submit evidence to the Regional Administrator (or to the State, if the State has the authority to issue NPDES permits) that factors relating to the equipment or facilities involved, the process applied, or other such factors related to such discharger are fundamentally different from the factors considered in the establishment of the guidelines. On the basis of such evidence or other available information, the Regional Administrator (or the State) will make a written finding that such factors are or are not fundamentally different from that facility compared to those specified in the Development Document. If such fundamentally different factors are found to exist, the Re-

gional Administrator or the State shall establish for the discharger effluent limitations in the NPDES permit either more or less stringent than the limitations established herein, to the extent dictated by such fundamentally different factors. Such limitations must be approved by the Administrator of the Environmental Protection Agency. The Administrator may approve or disapprove such limitations, specify other limitations, or initiate proceedings to revise these regulations.

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

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed
	Metric units (kilograms per 1,000 m ³ of feedstock)	
BOD ₅	54.4	28.9
TSS.....	32.8	19.2
COD ¹	383	198
Oil and grease.....	17.1	9.1
Phenolic compounds.....	.40	.192
Ammonia as N.....	23.4	10.6
Sulfide.....	.35	.158
Total chromium.....	.82	.48
Hexavalent chromium.....	.017	.0079
pH.....	Within the range 6.0 to 9.0.	
	English units (pounds per 1,000 bbl of feedstock)	
BOD ₅	10.2	10.2
TSS.....	11.6	6.8
COD ¹	136	70
Oil and grease.....	6.0	3.2
Phenolic compounds.....	.14	.063
Ammonia as N.....	8.3	3.8
Sulfide.....	.124	.056
Total chromium.....	.29	.17
Hexavalent chromium.....	.0062	.0028
pH.....	Within the range 6.0 to 9.0.	

¹ In any case in which the applicant can demonstrate that the chloride ion concentration in the effluent exceeds 1,000 mg/l (1,000 ppm), the Regional Administrator may substitute TOC as a parameter in lieu of COD. Effluent limitations for TOC shall be based on effluent data from the plant correlating TOC to BOD₅. If in the judgement of the Regional Administrator, adequate correlation data are not available, the effluent limitations for TOC shall be established at a ratio of 2.2 to 1 to the applicable effluent limitations on BOD₅.

(b) The limits set forth in paragraph (a) of this section are to be multiplied by the following factors to calculate the maximum for any one day and the maximum average of daily values for thirty consecutive days.

(1) Size factor

1,000 barrels of feedstock per stream day	Size factor
70 to 144.9.....	0.69
145 to 219.9.....	.89
220 or greater.....	1.02

(2) Process factor

Process configuration	Process factor
6.0 or less to 7.49.....	0.78
7.5 to 8.99.....	1.00
9.0 to 10.5 or greater.....	1.30

(3) See the comprehensive example Subpart D § 419.42(b) (3).

(c) The provisions of § 419.12(c) (1) and (2) apply to discharges of process waste water pollutants attributable to storm water runoff and ballast water by a point source subject to the provisions of this subpart.

(d) The quantity and quality of pollutants or pollutant properties controlled by this paragraph, attributable to once-through cooling water, are excluded from the discharge allowed by paragraph (b) of this section. Once-through cooling water may be discharged with a total organic concentration not to exceed 5 mg/l.

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

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

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed
	Metric units (kilograms per 1,000 m ³ of feedstock)	
BOD ₅	8.8	7.1
TSS.....	8.4	7.1
COD ¹	47	33
Oil and grease.....	1.7	1.4
Phenolic compounds.....	.041	.029
Ammonia as N.....	5.0	4.2
Sulfide.....	.19	.12
Total chromium.....	.44	.37
Hexavalent chromium.....	.0092	.0039
pH.....	Within the range 6.0 to 9.0.	
	English units (pounds per 1,000 bbl of feedstock)	
BOD ₅	3.2	2.6
TSS.....	3.0	2.6
COD ¹	10.8	13.4
Oil and grease.....	.60	.48
Phenolic compounds.....	.015	.010
Ammonia as N.....	2.0	1.5
Sulfide.....	.066	.042
Total chromium.....	.15	.13
Hexavalent chromium.....	.0033	.0021
pH.....	Within the range 6.0 to 9.0.	

¹ In any case in which the applicant can demonstrate that the chloride ion concentration in the effluent exceeds 1,000 mg/l (1,000 ppm), the Regional Administrator may substitute TOC as a parameter in lieu of COD. Effluent limitations for TOC shall be based on effluent data from the plant correlating TOC to BOD₅. If in the judgement of the Regional Administrator, adequate correlation data are not available, the effluent limitations for TOC shall be established at a ratio of 2.2 to 1 to the applicable effluent limitations on BOD₅.

(b) The limits set forth in paragraph (a) of this section are to be multiplied by the following factors to calculate the maximum for any one day and maximum average of daily values for thirty consecutive days.

(1) Size factor

1,000 barrels of feedstock per stream day	Size factor
70 to 144.9.....	0.69
145 to 219.9.....	.89
220 or greater.....	1.02

(2) Process factor

Process configuration	Process factor
6.0 or less to 7.49	0.78
7.5 to 8.99	1.00
9.0 to 10.5 or greater	1.30

(3) See the comprehensive example Subpart D § 419.42(b) (3).

(c) The provisions of § 419.13(c) (1) and (2) apply to discharges of process waste water pollutants attributable to storm water runoff and ballast water by a point source subject to the provisions of this subpart.

(d) The quantity and quality of pollutants or pollutant properties controlled by this paragraph, attributable to once-through cooling water, are excluded from the discharge allowed by paragraph (b) of this section. Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg/l.

§ 419.54 [Reserved]

§ 419.55 Standards of performance for new sources.

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

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed—
	Metric units (kilograms per 1,000 m ³ of feedstock)	
BOD ₅	41.6	22.1
TSS	24.7	14.5
COD ¹	235	152
Oil and grease	12.6	6.7
Phenolic compounds	.30	.14
Ammonia as N	23.4	10.7
Sulfide	.26	.12
Total chromium	.64	.37
Hexavalent chromium	.013	.0053
pH	Within the range 6.0 to 9.0.	
	English units (pounds per 1,000 bbl of feedstock)	
BOD ₅	14.7	7.8
TSS	8.7	5.1
COD ¹	104	54
Oil and grease	4.5	2.4
Phenolic compounds	.105	.051
Ammonia as N	8.3	3.8
Sulfide	.093	.042
Total chromium	.220	.13
Hexavalent chromium	.0047	.0021
pH	Within the range 6.0 to 9.0.	

¹ In any case in which the applicant can demonstrate that the chloride ion concentration in the effluent exceeds 1,000 mg/l (1,000 ppm), the Regional Administrator may substitute TOC as a parameter in lieu of COD. Effluent limitations for TOC shall be based on effluent data from the plant correlating TOC to BOD₅.

If in the judgment of the Regional Administrator, adequate correlation data are not available, the effluent limitations for TOC shall be established at a ratio of 2.2 to 1 to the applicable effluent limitations on BOD₅.

(b) The limits set forth in paragraph (a) of this section are to be multiplied by the following factors to calculate the maximum for any one day and maximum average of daily values for thirty consecutive days.

(1) Size factor

1,000 barrels of feedstock: per stream day	Size factor
70 to 144.9	0.69
145 to 219.9	.89
220 or greater	1.02

(2) Process factor

Process configuration	Process factor
6.0 or less to 7.49	0.78
7.5 to 8.99	1.00
9.0 to 10.5 or greater	1.30

(3) See the comprehensive example Subpart D § 419.42(b) (3).

(c) The provision of § 419.15(c) (1) and (2) apply to discharges of process waste water pollutants attributable to storm water runoff and ballast water by a point source subject to the provisions of this subpart.

(d) The quantity and quality of pollutants or pollutant properties controlled by this paragraph, attributable to once-through cooling water, are excluded from the discharge allowed by paragraph (b) of this section. Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg/l.

§ 419.56 Pretreatment standards for new sources.

The pretreatment standards under section 307(c) of the Act for a source within the integrated subcategory, which is a 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 the navigable waters), shall be the standard set forth in Part 128 of this chapter, except that, for the purpose of this section, § 128.133 of this chapter shall be amended to read as follows: "In addition to the prohibitions set forth in § 128.131 of this chapter, the pretreatment standard for incompatible pollutants introduced into a publicly owned treatment works shall be the standard of performance for new sources specified in § 419.55: *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 in stringency for that pollutant."

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