# Chapter NR 279

## PETROLEUM REFINING



**Note:** Chapter NR 279 as it existed on October 31, 1986 was repealed and a new chapter NR 279 was created effective November 1, 1986.

**NR 279.01 Purpose.** The purpose of this chapter is to establish effluent limitations, standards of performance, and pretreatment standards for discharges of wastes from the petroleum refining category of point sources and subcategories thereof.

**History:** Cr. Register, October, 1986, No. 370, eff. 11-1-86.

**NR 279.02 Applicability.** The effluent limitations, standards of performance, pretreatment standards, and other provisions in this chapter are applicable to pollutants or pollutant properties in discharges resulting from operations of petroleum refining facilities in any of the following process or operation subcategories:

**c1d** Topping process;

**c2d** Cracking process;

**c3d** Petrochemical operation;

**c4d** Lube process; and

**c5d** Integrated process.

**History:** Cr. Register, October, 1986, No. 370, eff. 11-1-86.

**NR 279.03 General definitions.** For the purpose of this chapter:

**c1d** Except as provided below, the general definitions, abbreviations, and methods of analysis set forth in 40 CFR Part 401 shall apply to this chapter.

**c2d** XBallastY means the flow of waters, from a ship, that is treated along with refinery wastewaters in the main treatment system.

**c3d** XContaminated runoffY means runoff which comes into contact with any raw material, intermediate product, finished product, by-product or waste product located on petroleum refinery property.

**c4d** XExisting sourceY means any source that is not a new source.

**c5d** XFeedstockY means the crude oil and natural gas liquids fed to the topping units.

**c6d** XNew source,Y as defined for PSES and PSNS, means any building, structure, facility, or installation from which there is or may be a discharge of pollutants, the construction of which commenced after December 21, 1979.

**c7d** XNew source,Y as defined for BPT, BAT, BCT, and NSPS, means any point source the construction of which commenced after December 1, 1982.

**c8d** XOnce-through cooling waterY means 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.

**c9d** XRunoffY means the flow of storm water resulting from precipitation coming into contact with petroleum refinery property.

**c10d** The following abbreviation shall be used:

XMgalY means 1000 gallons.

**History:** Cr. Register, October, 1986, No. 370, eff. 11-1-86.

**NR 279.10 Applicability; description of the topping subcategory.** The provisions of this subcategory apply to discharges from any facility that 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 subcategory do not apply to facilities that include thermal processes ccoking, vis-breaking, etc.d or catalytic cracking.

**History:** Cr. Register, October, 1986, No. 370, eff. 11-1-86.

**NR 279.12 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available cBPTd. c1d** Except as provided in 40 CFR 125.30-125.32 any existing point source subject to this subcategory shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available cBPTd:

| | BPT Effluent Limitations | |
|---|---|---|
| **Pollutant or pollutant property** | **Maximum for any 1 day** | **Average of daily values for 30 consecutive days** |
| | **Metric units ckilograms per 1,000 $m^3$ of feedstockd** | |
| $BOD_5$ | 22.7 | 12.0 |
| TSS | 15.8 | 10.1 |
| COD[1] | 117.0 | 60.3 |
| Oil and grease | 6.9 | 3.7 |
| Phenolic compounds | 0.168 | 0.076 |
| Ammonia as N | 2.81 | 1.27 |
| Sulfide | 0.149 | 0.068 |
| Total chromium | 0.345 | 0.2 |
| Hexavalent chromium | 0.028 | 0.012 |
| pH | c2d | c2d |
| | **English units cpounds per 1,000 bbl of feedstockd** | |
| $BOD_5$ | 8.0 | 4.25 |
| TSS | 5.6 | 3.6 |
| COD[1] | 41.2 | 21.3 |
| Oil and grease | 2.5 | 1.3 |
| Phenolic compounds | 0.06 | 0.027 |
| Ammonia as N | 0.99 | 0.45 |
| Sulfide | 0.053 | 0.024 |
| Total chromium | 0.122 | 0.071 |
| Hexavalent chromium | 0.01 | 0.0044 |
| pH | c2d | c2d |

[1] See footnote following table in s. NR 279.13 c4d.

[2] Within the range of 6.0 to 9.0.

**c2d** The limits set forth in sub. c1d shall be multiplied by the following factors to calculate the maximum for any one day and maximum average of daily values for 30 consecutive days.

cad Size factor.

| 1000 bbl. of feedstock per stream day | Size factor |
|---|---|
| Less than 24.9 | 1.02 |
| 25.0 to 49.9 | 1.06 |
| 50.0 to 74.9 | 1.16 |
| 75.0 to 99.9 | 1.26 |
| 100 to 124.9 | 1.38 |
| 125.0 to 149.9 | 1.5 |
| 150.0 or greater | 1.57 |

cbd Process factor.

| Process configuration | Process factor |
|---|---|
| Less than 2.49 | 0.62 |
| 2.5 to 3.49 | 0.67 |
| 3.5 to 4.49 | 0.8 |
| 4.5 to 5.49 | 0.95 |
| 5.5 to 5.99 | 1.07 |
| 6.0 to 6.49 | 1.17 |
| 6.5 to 6.99 | 1.27 |
| 7.0 to 7.49 | 1.39 |
| 7.5 to 7.99 | 1.51 |
| 8.0 to 8.49 | 1.64 |
| 8.5 to 8.99 | 1.79 |
| 9.0 to 9.49 | 1.95 |
| 9.5 to 9.99 | 2.12 |
| 10.0 to 10.49 | 2.31 |
| 10.5 to 10.99 | 2.51 |
| 11.0 to 11.49 | 2.73 |
| 11.5 to 11.99 | 2.98 |
| 12.0 to 12.49 | 3.24 |
| 12.5 to 12.99 | 3.53 |
| 13.0 to 13.49 | 3.84 |
| 13.5 to 13.99 | 4.18 |
| 14.0 or greater | 4.36 |

**Note:** See the comprehensive example in s. NR 279.42 c2d ccd.

**c3d** The following allocations constitute the quantity and quality of pollutants or pollutant properties controlled by this subsection and attributable to ballast, which may be discharged after the application of best practicable control technology currently available, by a point source subject to this subcategory, in addition to the discharge allowed by sub. c2d. The allocation allowed for ballast water flow, as kg{cu m clb{M gald, shall be based on those ballast waters treated at the refinery.

| | BPT Effluent Limitations for Ballast Water | |
|---|---|---|
| **Pollutant or pollutant property** | **Maximum for any 1 day** | **Average of daily values for 30 consecutive days** |
| | **Metric units ckilograms per cubic meter of flowd** | |
| $BOD_5$ | 0.048 | 0.026 |
| TSS | 0.033 | 0.021 |
| COD[1] | 0.47 | 0.24 |
| Oil and grease | 0.015 | 0.008 |
| pH | c2d | c2d |
| | **English units cpounds per 1,000 gal of flowd** | |
| $BOD_5$ | 0.4 | 0.21 |
| TSS | 0.26 | 0.17 |
| COD[1] | 3.9 | 2.0 |
| Oil and grease | 0.126 | 0.067 |
| pH | c2d | c2d |

[1] See footnote following table in s. NR 279.13 c4d.

[2] Within the range of 6.0 to 9.0.

**c4d** The quantity and quality of pollutants or pollutant properties controlled by this subsection, attributable to once-through cooling water, are excluded from the discharge allowed by sub. c2d. Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg{l.

**c5d** Effluent limitations for contaminated runoff. The following effluent limitations constitute the quantity and quality of pollutants or pollutant properties controlled by this subsection and attributable to contaminated runoff, which may be discharged after the application of the best practicable control technology currently available by a point source subject to this subcategory.

cad If wastewater consists solely of contaminated runoff and is not commingled or treated with process wastewater, it may be discharged if it does not exceed 15 mg{l oil and grease and 110 mg{l total organic carbon cTOCd based upon an analysis of any single grab or composite sample.

cbd If contaminated runoff is commingled or treated with

process wastewater, or if wastewater consisting solely of contaminated runoff which exceeds 15 mg{l oil and grease or 110 mg{l TOC is not commingled or treated with any other type of wastewater, the quantity of pollutants discharged may not exceed the quantity determined by multiplying the flow of contaminated runoff as determined by the department times the concentrations listed in the following table:

**BPT Effluent Limitations**

| Pollutant or pollutant property | Maximum for any 1 day | Average of daily values for 30 consecutive days |
|---|---|---|
| | **Metric units ckilograms per 1,000 cubic meters of flowd** | |
| $BOD_5$ | 48.0 | 26.0 |
| TSS | 33.0 | 21.0 |
| COD[1] | 360.0 | 180.0 |
| Oil and grease | 15.0 | 8.0 |
| Phenolic compounds c4AAPd | 0.35 | 0.17 |
| Total chromium | 0.73 | 0.43 |
| Hexavalent chromium | 0.062 | 0.028 |
| pH | c2d | c2d |
| | **English units cpounds per 1,000 gal of flowd** | |
| $BOD_5$ | 0.4 | 0.22 |
| TSS | 0.28 | 0.18 |
| COD[1] | 3.0 | 1.5 |
| Oil and grease | 0.13 | 0.067 |
| Phenolic compounds c4AAPd | 0.0029 | 0.0014 |
| Total chromium | 0.006 | 0.0035 |
| Hexavalent chromium | 0.00052 | 0.00023 |
| pH | c2d | c2d |

[1] In any case in which the applicant can demonstrate that the chloride ion concentration in the effluent exceeds 1,000 mg{l c1,000 ppmd, the department may substitute TOC as a parameter in lieu of COD. A TOC effluent limitation shall be based on effluent data from the particular refinery which correlates TOC to BOD. If in the judgment of the department, 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 for BOD.[2]

[2] Within the range 6.0 to 9.0.

**History:** Cr. Register, October, 1986, No. 370, eff. 11-1-86.

**NR 279.13 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable cBATd. c1d** Except as provided in 40 CFR 125.30-125.32 any existing point source subject to this subcategory shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable cBATd:

**BAT Effluent Limitations**

| Pollutant or pollutant property | Maximum for any 1 day | Average of daily values for 30 consecutive days |
|---|---|---|
| | **Metric units ckilograms per 1,000 $m^3$ of feedstockd** | |
| COD[1] | 117 | 60.3 |
| Ammonia as N | 2.81 | 1.27 |
| Sulfide | 0.149 | 0.068 |
| | **English units cpounds per 1,000 bbl of feedstockd** | |
| COD[1] | 41.2 | 21.3 |
| Ammonia as N | 0.99 | 0.45 |
| Sulfide | 0.053 | 0.024 |

[1] See footnote following table in s. NR 279.13 c4d.

**c2d** The limits set forth in sub. c1d shall be multiplied by the following factors to calculate the maximum for any one day and maximum average of daily values for 30 consecutive days.

cad Size factor.

| 1000 bbl. of feedstock per stream day | Size factor |
|---|---|
| Less than 24.9 | 1.02 |
| 25.0 to 49.9 | 1.06 |
| 50.0 to 74.9 | 1.16 |
| 75.0 to 99.9 | 1.26 |
| 100.0 to 124.9 | 1.38 |
| 125.0 to 149.9 | 1.5 |
| 150.0 or greater | 1.57 |

cbd Process factor.

| Process configuration | Process factor |
|---|---|
| Less than 2.49 | 0.62 |
| 2.5 to 3.49 | 0.67 |
| 3.5 to 4.49 | 0.8 |
| 4.5 to 5.49 | 0.95 |
| 5.5 to 5.99 | 1.07 |
| 6.0 to 6.49 | 1.17 |
| 6.5 to 6.99 | 1.27 |
| 7.0 to 7.49 | 1.39 |
| 7.5 to 7.99 | 1.51 |
| 8.0 to 8.49 | 1.64 |
| 8.5 to 8.99 | 1.79 |
| 9.0 to 9.49 | 1.95 |
| 9.5 to 9.99 | 2.12 |
| 10.0 to 10.49 | 2.31 |
| 10.5 to 10.99 | 2.51 |
| 11.0 to 11.49 | 2.73 |
| 11.5 to 11.99 | 2.98 |
| 12.0 to 12.49 | 3.24 |
| 12.5 to 12.99 | 3.53 |
| 13.0 to 13.49 | 3.84 |
| 13.5 to 13.99 | 4.18 |
| 14.0 or greater | 4.36 |

**Note:** See the comprehensive example in s. NR 279.42 c2d ccd.

**c3d** cad In addition to the provisions contained in sub. c1d pertaining to COD, ammonia and sulfide any existing point source subject to this subcategory shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable cBATd. For each of the regulated pollutant parameters listed below, the effluent limitation for a given refinery is the sum of the products of each effluent limitation factor times the applicable process feedstock rate, calculated as provided in 40 CFR 122.45 cbd.

**Note:** Applicable production processes are presented in Appendix A, by process type. The process identification numbers presented in this Appendix A are for the convenience of the reader. They can be cross-referenced in the Development Document for Effluent Limitations Guidelines, New Source Performance Standards, and Pretreatment Standards for the Petroleum Refining Point Source Category cEPA 440{1-82{014d, Table III-7, pp. 49-54.

40 CFR 122.45 cbd reads as follows: The calculation of any permit limitations, standards, or prohibitions which are based on production cor other measure of operationd shall be based not upon the designed production capacity but rather upon a reasonable measure of actual production of the facility, such as the production during the high month of the previous year, or the monthly average for the highest of the previous 5 years. For new sources or new dischargers, actual production shall be estimated using projected production. The time period of the measure of production shall correspond to the time period of the calculated permit limitations; for example, monthly production shall be used to calculate average monthly discharge limitations.

| Pollutant or pollutant property and process type | BAT Effluent Limitations Factor: Maximum for any 1 day | Average of daily values for 30 consecutive days |
|---|---|---|
| | Metric units ckilograms per 1,000 $m^3$ of feedstockd | |
| Phenolic compounds c4AAPd: | | |
| Crude | 0.037 | 0.009 |
| Cracking and coking | 0.419 | 0.102 |
| Asphalt | 0.226 | 0.055 |
| Lube | 1.055 | 0.257 |
| Reforming and alkylation | 0.377 | 0.092 |
| Total chromium: | | |
| Crude | 0.03 | 0.011 |
| Cracking and coking | 0.34 | 0.118 |
| Asphalt | 0.183 | 0.064 |
| Lube | 0.855 | 0.297 |
| Reforming and alkylation | 0.305 | 0.106 |
| Hexavalent chromium: | | |
| Crude | 0.0019 | 0.0009 |
| Cracking and coking | 0.0218 | 0.0098 |
| Asphalt | 0.0117 | 0.0053 |
| Lube | 0.0549 | 0.0248 |
| Reforming and alkylation | 0.0196 | 0.0088 |
| | English units cpounds per 1,000 bbl of feedstock | |
| Phenolic compounds c4AAPd: | | |
| Crude | 0.013 | 0.003 |
| Cracking and coking | 0.147 | 0.036 |
| Asphalt | 0.079 | 0.019 |
| Lube | 0.369 | 0.09 |
| Reforming and alkylation | 0.132 | 0.032 |
| Total chromium: | | |
| Crude | 0.011 | 0.004 |
| Cracking and coking | 0.119 | 0.041 |
| Asphalt | 0.064 | 0.022 |
| Lube | 0.299 | 0.104 |
| Reforming and alkylation | 0.107 | 0.037 |
| Hexavalent chromium: | | |
| Crude | 0.0007 | 0.0003 |
| Cracking and coking | 0.0076 | 0.0034 |
| Asphalt | 0.0041 | 0.0019 |
| Lube | 0.0192 | 0.0087 |
| Reforming and alkylation | 0.0089 | 0.0031 |

**Note:** See the comprehensive example in s. NR 279.43 c3d cbd.

**c4d** The following allocations constitute the quantity and quality of pollutants or pollutant properties controlled by this subsection, attributable to ballast, which may be discharged after the application of best available technology economically achievable by a point source subject to the provisions of this subcategory. These allocations are in addition to the discharge allowed by sub. c2d. The allocation allowed for ballast water flow, as kg{cu m clb{M gald, shall be based on those ballast waters treated at the refinery.

| Pollutant or pollutant property | BAT Effluent Limitations For Ballast Water: Maximum for any 1 day | Average of daily values for 30 consecutive days |
|---|---|---|
| | Metric units ckilograms per cubic meter of flowd | |
| COD[1] | 0.47 | 0.24 |
| | English units cpounds per 1,000 gal. of flowd | |
| COD[1] | 3.9 | 2.0 |

[1] In any case in which the applicant can demonstrate that the chloride ion concentration in the effluent exceeds 1,000 mg{l c1,000 ppmd, the Regional Administrator of the EPA 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 $BOD_5$. 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 $BOD_5$.

**c5d** The quantity and quality of pollutants or pollutant properties controlled by this subsection, attributable to once-through cooling water, are excluded from the discharge allowed by sub. c2d. Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg{l.

**c6d** The following effluent limitations constitute the quantity and quality of pollutants or pollutant properties controlled by this subsection and attributable to contaminated runoff, which may be discharged after the application of the best available technology economically achievable by a point source subject to this subcategory.

cad If wastewater consists solely of contaminated runoff and is not commingled or treated with process wastewater, it may be discharged if it does not exceed 110 mg{l total organic carbon cTOCd based upon an analysis of any single grab or composite sample.

cbd If contaminated runoff is commingled or treated with process wastewater, or if wastewater consisting solely of contaminated runoff which exceeds 110 mg{l TOC is not commingled or treated with any other type of wastewater, the quantity of pollutants discharged may not exceed the quantity determined by multiplying the flow of contaminated runoff as determined by the department times the concentrations listed in the following table:

| Pollutant or pollutant property | BAT effluent limitations: Maximum for any 1 day | Average of daily values for 30 consecutive days |
|---|---|---|
| | Metric units ckilograms per 1,000 cubic meters of flowd | |
| Phenolic compounds c4AAPd | 0.35 | 0.17 |
| Total chromium | 0.6 | 0.21 |
| Hexavalent chromium | 0.062 | 0.028 |
| COD[1] | 360.0 | 180.0 |
| | English units cpounds per 1,000 gallons of flowd | |
| Phenolic compounds c4AAPd | .0029 | .0014 |
| Total chromium | .005 | .0018 |
| Hexavalent chromium | .00052 | .00023 |
| COD[1] | 3.0 | 1.5 |

[1] In any case in which the applicant can demonstrate that the chloride ion concentration in the effluent exceeds 1000 mg{l c1000 ppmd, the department may substitute TOC as a parameter in lieu of COD. A TOC effluent limitation shall be based on effluent data from the particular refinery which correlates TOC to $BOD_5$. If in the judgment of the department, 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 for $BOD_5$.

**History:** Cr. Register, October, 1986, No. 370, eff. 11-1-86.

## NR 279.14 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology cBCTd.

**c1d** Any existing point source subject to this subcategory shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology cBCTd:

| Pollutant or pollutant property | BCT Effluent Limitations: Maximum for any 1 day | Average of daily values for 30 consecutive days |
|---|---|---|
| | Metric units ckilograms per 1,000 $m^3$ of feedstockd | |
| $BOD_5$ | 22.7 | 12.0 |
| TSS | 15.8 | 10.1 |
| Oil and grease | 6.9 | 3.7 |
| pH | c1d | c1d |
| | English units cpounds per 1,000 bbl of feedstockd | |
| $BOD_5$ | 8.0 | 4.25 |
| TSS | 5.6 | 3.6 |
| Oil and grease | 2.5 | 1.3 |
| pH | c1d | c1d |

[1] Within the range 6.0 to 9.0.

**c2d** The limits set forth in sub. c1d shall be multiplied by the following factors to calculate the maximum for any one day and maximum average of daily values for 30 consecutive days.

cad Size factor.

| 1000 bbl. of feedstock per stream day | Size factor |
|---|---|
| Less than 24.9 | 1.02 |
| 25.0 to 49.9 | 1.06 |
| 50.0 to 74.9 | 1.16 |
| 75.0 to 99.9 | 1.26 |
| 100.0 to 124.9 | 1.38 |
| 125.0 to 149.9 | 1.5 |
| 150.0 or greater | 1.57 |

cbd Process factor.

| Process configuration | Process factor |
|---|---|
| Less than 2.49 | 0.62 |
| 2.5 to 3.49 | 0.67 |
| 3.5 to 4.49 | 0.8 |
| 4.5 to 5.49 | 0.95 |
| 5.5 to 5.99 | 1.07 |
| 6.0 to 6.49 | 1.17 |
| 6.5 to 6.99 | 1.27 |
| 7.0 to 7.49 | 1.39 |
| 7.5 to 7.99 | 1.51 |
| 8.0 to 8.49 | 1.64 |
| 8.5 to 8.99 | 1.79 |
| 9.0 to 9.49 | 1.95 |
| 9.5 to 9.99 | 2.12 |
| 10.0 to 10.49 | 2.31 |
| 10.5 to 10.99 | 2.51 |
| 11.0 to 11.49 | 2.73 |
| 11.5 to 11.99 | 2.98 |
| 12.0 to 12.49 | 3.24 |
| 12.5 to 12.99 | 3.53 |
| 13.0 to 13.49 | 3.84 |
| 13.5 to 13.99 | 4.18 |
| 14.0 or greater | 4.36 |

**Note:** See the comprehensive example in s. NR 279.42 c2d ccd.

**c3d** The following allocations constitute the quantity and quality of pollutants or pollutant properties controlled by this subsection and attributable to ballast, which may be discharged after the application of best conventional pollutant control technology by a point source subject to this subcategory, in addition to the discharge allowed by sub. c2d. The allocation allowed for ballast water flow, as kg{cu m clb{1000 gald, shall be based on those ballast waters treated at the refinery.

| | BCT Effluent Limitations for Ballast Water | |
|---|---|---|
| Pollutant or pollutant property | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Metric units ckilograms per cubic meter of flowd | |
| $BOD_5$ | 0.048 | 0.026 |
| TSS | 0.033 | 0.021 |
| Oil and grease | 0.015 | 0.008 |
| pH | c1d | c1d |
| | English units cpounds per 1,000 gallons of flowd | |
| $BOD_5$ | 0.4 | 0.21 |
| TSS | 0.26 | 0.17 |
| Oil and grease | 0.126 | 0.067 |
| pH | c1d | c1d |

[1]Within the range 6.0 to 9.0.

**c4d** The quantity and quality of pollutants or pollutant properties controlled by this subsection attributable to once-through cooling water, are excluded from the discharge allowed by sub. c2d.

**c5d** The following effluent limitations constitute the quantity and quality of pollutants or pollutant properties controlled by this subsection and attributable to contaminated runoff which may be discharged after the application of the best conventional pollutant control technology by a point source subject to this subcategory.

cad If wastewater consists solely of contaminated runoff and is not commingled or treated with process wastewater, it may be discharged if it does not exceed 15 mg{l oil and grease based upon an analysis of any single grab or composite sample.

cbd If contaminated runoff is commingled or treated with process wastewater, or if wastewater consisting solely of contaminated runoff which exceeds 15 mg{l oil and grease is not commingled or treated with any other type of wastewater, the quantity of pollutants discharged may not exceed the quantity determined by multiplying the flow of contaminated runoff as determined by the department times the concentrations listed in the following table.

| | BCT Effluent Limitations | |
|---|---|---|
| Pollutant or pollutant property | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Metric units ckilograms per 1,000 cubic meters of flowd | |
| $BOD_5$ | 48.0 | 26.0 |
| TSS | 33.0 | 21.0 |
| Oil and grease | 15.0 | 8.0 |
| pH | c1d | c1d |
| | English units cpounds per 1,000 gallons of flowd | |
| $BOD_5$ | 0.4 | 0.22 |
| TSS | 0.28 | 0.18 |
| Oil and grease | 0.13 | 0.067 |
| pH | c1d | c1d |

[1]Within the range of 6.0 to 9.0

**History:** Cr. Register, October, 1986, No. 370, eff. 11-1-86.

**NR 279.15 Pretreatment standards for existing sources cPSESd.** Except as provided in 40 CFR 403.7 and 403.13 any existing source subject to this subcategory which introduces pollutants into a publicly owned treatment works shall comply with 40 CFR Part 403 and achieve the following pretreatment standards for existing sources cPSESd. The following standards apply to the total refinery flow contribution to the POTW:

| Pollutant or pollutant property | Pretreatment standards for existing sources maximum for any 1 day |
|---|---|
| | Milligrams per liter cmg{ld |
| Oil and grease | 100.0 |
| Ammonia as N | [1]100.0 |

[1]Where the discharge to the POTW consists solely of sour waters, the owner or operator has the option of complying with this limit or the daily maximum mass limitation for ammonia set forth in s. NR 279.13 c1d and c2d.

**History:** Cr. Register, October, 1986, No. 370, eff. 11-1-86.

**NR 279.16 Standards of performance for new sources cNSPSd. c1d** Any new source subject to this subcategory shall achieve the following new source performance standards cNSPSd:

| | NSPS effluent limitations | |
|---|---|---|
| Pollutant or pollutant property | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Metric units ckilograms per cubic meter of flowd | |
| $BOD_5$ | 11.8 | 6.3 |
| TSS | 8.3 | 4.9 |
| COD[1] | 61.0 | 32.0 |
| Oil and grease | 3.6 | 1.9 |
| Phenolic compounds | 0.088 | 0.043 |
| Ammonia as N | 2.8 | 1.3 |
| Sulfide | 0.078 | 0.035 |
| Total chromium | 0.18 | 0.105 |
| Hexavalent chromium | 0.015 | 0.0068 |
| pH | c2d | c2d |
| | English units cpounds per 1,000 gallons of flowd | |
| $BOD_5$ | 4.2 | 2.2 |
| TSS | 3.0 | 1.9 |
| COD[1] | 21.7 | 11.2 |
| Oil and grease | 1.3 | 0.7 |
| Phenolic compounds | 0.031 | 0.016 |
| Ammonia as N | 1.0 | 0.45 |
| Sulfide | 0.027 | 0.012 |
| Total chromium | 0.064 | 0.037 |
| Hexavalent chromium | 0.0052 | 0.0025 |
| pH | c2d | c2d |

[1]See footnote following table in s. NR 279.13 c4d.
[2] Within the range of 6.0 to 9.0

**c2d** The limits set forth in sub. c1d shall be multiplied by the following factors to calculate the maximum for any one day and maximum average of daily values for 30 consecutive days.

cad Size factor.

| 1000 bbl. of feedstock per stream day | Size factor |
|---|---|
| Less than 24.9 | 1.02 |
| 25.0 to 49.9 | 1.06 |
| 50.0 to 74.9 | 1.16 |
| 75.0 to 99.9 | 1.26 |
| 100.0 to 124.9 | 1.38 |
| 125.0 to 149.9 | 1.5 |
| 150.0 or greater | 1.57 |

cbd Process factor.

| Process configuration | Process factor |
|---|---|
| Less than 2.49 | 0.62 |
| 2.5 to 3.49 | 0.67 |
| 3.5 to 4.49 | 0.8 |
| 4.5 to 4.49 | 0.95 |
| 5.5 to 5.99 | 1.07 |
| 6.0 to 6.49 | 1.17 |
| 6.5 to 6.99 | 1.27 |
| 7.0 to 7.49 | 1.39 |
| 7.5 to 7.99 | 1.51 |
| 8.0 to 8.49 | 1.64 |
| 8.5 to 8.99 | 1.79 |
| 9.0 to 9.49 | 1.95 |
| 9.5 to 9.99 | 2.12 |
| 10.0 to 10.49 | 2.31 |
| 10.5 to 10.99 | 2.51 |
| 11.0 to 11.49 | 2.73 |
| 11.5 to 11.99 | 2.98 |
| 12.0 to 12.49 | 3.24 |
| 12.5 to 12.99 | 3.53 |
| 13.0 to 13.49 | 3.84 |
| 13.5 to 13.99 | 4.18 |
| 14.0 or greater | 4.36 |

**Note:** See the comprehensive example in s. NR 279.42 c2d ccd.

**c3d** The following allocations constitute the quantity and quality of pollutants or pollutant properties controlled by this subsection and attributable to ballast, which may be discharged after the application of best practicable control technology currently available, by a point source subject to this subcategory, in addition to the discharge allowed by sub. c2d. The allocation allowed for ballast water flow, as kg{cu m clb{M gald, shall be based on those ballast waters treated at the refinery.

| | NSPS Effluent Limitations for Ballast Water | |
|---|---|---|
| Pollutant or pollutant property | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Metric units ckilograms per cubic meter of flowd | |
| $BOD_5$ | 0.048 | 0.026 |
| TSS | 0.033 | 0.021 |
| COD[1] | 0.47 | 0.24 |
| Oil and grease | 0.015 | 0.08 |
| pH | c2d | c2d |
| | English units cpounds per 1,000 gal of flowd | |
| $BOD_5$ | 0.40 | 0.21 |
| TSS | 0.27 | 0.17 |
| COD[1] | 3.9 | 2.0 |
| Oil and grease | 0.126 | 0.067 |
| pH | c2d | c2d |

[1] See footnote following table in s. NR 279.13 c4d.
[2] Within the range of 6.0 to 9.0.

**c4d** The quantity and quality of pollutants or pollutant properties controlled by this subsection, attributable to once-through cooling water, are excluded from the discharge allowed by sub. c2d. Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg{l.

**History:** Cr. Register, October, 1986, No. 370, eff. 11-1-86.

**NR 279.17 Pretreatment standards for new sources cPSNSd.** Except as provided in 40 CFR 403.7, any new source subject to this subcategory which introduces pollutants into a publicly owned treatment works shall comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources cPSNSd.

**c1d** The following standards apply to the total refinery flow contribution to the POTW:

| Pollutant or pollutant property | Pretreatment standards for new sources - maximum for any 1 day |
|---|---|
| | Milligrams per liter cmg{ld |
| Oil and grease | 100.0 |
| Ammonia as N | [1]100.0 |

[1]Where the discharge to the POTW consists solely of sour waters, the owner or operator has the option of complying with this daily maximum mass limitation for ammonia set forth in s. NR 279.16 c1d and c2d.

**c2d** The following standard is applied to the cooling tower discharge part of the total refinery flow to the POTW by multiplying:

cad The standard;

cbd By the total refinery flow to the POTW; and

ccd By the ratio of the cooling tower discharge flow to the total refinery flow.

| Pollutant or pollutant property | Pretreatment standards for new sources - maximum for any 1 day |
|---|---|
| | Milligrams per liter cmg{ld |
| Total chromium | 1.0 |

**History:** Cr. Register, October, 1986, No. 370, eff. 11-1-86.

**NR 279.20 Applicability; description of the cracking subcategory.** The provisions of this subcategory are applicable to all discharges from any facility that 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 subcategory are not applicable, however, to facilities that include the processes specified in the petrochemical, lube or integrated subcategories.

**History:** Cr. Register, October, 1986, No. 370, eff. 11-1-86.

**NR 279.22 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available cBPTd. c1d** Except as provided in 40 CFR 125.30-125.32, any existing point source subject to this subcategory shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available:

| BPT effluent limitations | | |
|---|---|---|
| **Pollutant or pollutant property** | **Maximum for any 1 day** | **Average of daily values for 30 consecutive days** |
| | **Metric units ckilograms per 1,000 $m^3$ of feedstockd** | |
| $BOD_5$ | 28.2 | 15.6 |
| TSS | 19.5 | 12.6 |
| COD[1] | 210.0 | 109.0 |
| Oil and grease | 8.4 | 4.5 |
| Phenolic compounds | 0.21 | 0.1 |
| Ammonia as N | 18.8 | 8.5 |
| Sulfide | 0.18 | 0.082 |
| Total chromium | 0.43 | 0.25 |
| Hexavalent chromium | 0.035 | 0.016 |
| pH | c2d | c2d |
| | **English units cpounds per 1,000 bbl of feedstockd** | |
| $BOD_5$ | 9.9 | 5.5 |
| TSS | 6.9 | 4.4 |
| COD[1] | 74.0 | 38.4 |
| Oil and grease | 3.0 | 1.6 |
| Phenolic compounds | 0.074 | 0.036 |
| Ammonia as N | 6.6 | 3.0 |
| Sulfide | 0.065 | 0.029 |
| Total chromium | 0.15 | 0.088 |
| Hexavalent chromium | 0.012 | 0.0056 |
| pH | c2d | c2d |

[1] See footnote following table in s. NR 279.13 c4d.
[2] Within the range of 6.0 to 9.0

**c2d** The limits set forth in sub. c1d shall be multiplied by the following factors to calculate the maximum for any one day and maximum average of daily values for 30 consecutive days.

cad Size factor.

| 1000 bbl. of feedstock per stream day | Size factor |
|---|---|
| Less than 24.9 | 0.91 |
| 25.0 to 49.9 | 0.95 |
| 50.0 to 74.9 | 1.04 |
| 75.0 to 99.9 | 1.13 |
| 100.0 to 124.9 | 1.23 |
| 125.0 to 149.9 | 1.35 |
| 150.0 or greater | 1.41 |

cbd Process factor.

| Process configuration | Process factor |
|---|---|
| Less than 2.49 | 0.58 |
| 2.5 to 3.49 | 0.63 |
| 3.5 to 4.49 | 0.74 |
| 4.5 to 5.49 | 0.88 |
| 5.5 to 5.99 | 1.0 |
| 6.0 to 6.49 | 1.09 |
| 6.5 to 6.99 | 1.19 |
| 7.0 to 7.49 | 1.29 |
| 7.5 to 7.99 | 1.41 |
| 8.0 to 8.49 | 1.53 |
| 8.5 to 8.99 | 1.67 |
| 9.0 to 9.49 | 1.82 |
| 9.5 or greater | 1.89 |

**Note:** See the comprehensive example in s. NR 279.42 c2d ccd.

**c3d** The provisions of s. NR 279.12 c3d apply to discharges of process wastewater pollutants attributable to ballast water by a point source subject to the provisions of this subcategory.

**c4d** The quantity and quality of pollutants or pollutant properties controlled by this subsection, attributable to once-through cooling water, are excluded from the discharge allowed by sub. c2d. Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg{l.

**c5d** The following effluent limitations constitute the quantity and quality of pollutants or pollutant properties controlled by this subsection and attributable to contaminated runoff, which may be discharged after the application of the best practicable control technology currently available by a point source subject to this subcategory.

cad If wastewater consists solely of contaminated runoff and is not commingled or treated with process wastewater, it may be discharged if it does not exceed 15 mg{l oil and grease and 110 mg{l total organic carbon cTOCd based upon an analysis of any single grab or composite sample.

cbd If contaminated runoff is commingled or treated with process wastewater, or if wastewater consisting solely of contaminated runoff which exceeds 15 mg{l oil and grease or 110 mg{l TOC is not commingled or treated with any other type of wastewater, the quantity of pollutants discharged may not exceed the quantity determined by multiplying the flow of contaminated runoff as determined by the department times the concentration listed in the following table:

| BPT effluent limitations | | |
|---|---|---|
| **Pollutant or pollutant property** | **Maximum for any 1 day** | **Average of daily values for 30 consecutive days** |
| | **Metric units ckilograms per 1,000 cubic meters of flow** | |
| $BOD_5$ | 48.0 | 26.0 |
| TSS | 33.0 | 21.0 |
| COD[1] | 360.0 | 180.0 |
| Oil and grease | 15.0 | 8.0 |
| Phenolic compounds c4AAPd | 0.35 | 0.17 |
| Total chromium | 0.73 | 0.43 |
| Hexavalent chromium | 0.062 | 0.028 |
| pH | c2d | c2d |
| | **English units cpounds per 1,000 gallons of flowd** | |
| $BOD_5$ | 0.4 | 0.22 |
| TSS | 0.28 | 0.18 |
| COD[1] | 3.0 | 1.5 |
| Oil and grease | 0.13 | 0.067 |
| Phenolic compounds c4AAPd | 0.0029 | 0.0014 |
| Total chromium | 0.006 | 0.0035 |
| Hexavalent chromium | 0.00052 | 0.00023 |
| pH | c2d | c2d |

[1] In any case in which the applicant can demonstrate that the chloride ion concentration in the effluent exceeds 1,000 mg{l c1,000 ppmd, the department may substitute TOC as a parameter in lieu of COD. A TOC effluent limitation shall be based on effluent data from the particular refinery which correlates TOC to BOD. If in the judgment of the department, 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 for $BOD_5$.
[2] Within the range 6.0 to 9.0.

**History:** Cr. Register, October, 1986, No. 370, eff. 11-1-86.

**NR 279.23 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable cBATd.** **c1d** Except as provided in 40 CFR 125.30 - 125.32, any existing point source subject to this subcategory shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable:

| BAT effluent limitations | | |
|---|---|---|
| **Pollutant or pollutant property** | **Maximum for any 1 day** | **Average of daily values for 30 consecutive days** |
| | **Metric units ckilograms per 1,000 $m^3$ of feedstock** | |
| COD[1] | 210.0 | 109.0 |
| Ammonia as N | 18.8 | 8.5 |
| Sulfide | 0.18 | 0.082 |
| | **English units cpounds per 1,000 bbl of feedstockd** | |
| COD[1] | 74.0 | 38.4 |
| Ammonia as N | 6.6 | 3.0 |
| Sulfide | 0.065 | 0.029 |

[1] See footnote following table in s. NR 279.13 c4d.

**c2d** The limits set forth in sub. c1d shall be multiplied by the following factors to calculate the maximum for any one day and maximum average of daily values for 30 consecutive days:

cad Size factor.

| 1000 bbl. of feedstock per stream day | Size factor |
|---|---|
| Less than 24.9 | 0.91 |
| 25.0 to 49.9 | 0.95 |
| 50.0 to 74.9 | 1.04 |
| 75.0 to 99.9 | 1.13 |
| 100.0 to 124.9 | 1.23 |
| 125.0 to 149.9 | 1.35 |
| 150.0 or greater | 1.41 |

cbd Process factor.

| Process configuration | Process factor |
|---|---|
| Less than 2.49 | 0.58 |
| 2.5 to 3.49 | 0.63 |
| 3.5 to 4.49 | 0.74 |
| 4.5 to 5.49 | 0.88 |
| 5.5 to 5.99 | 1.0 |
| 6.0 to 6.49 | 1.09 |
| 6.5 to 6.99 | 1.19 |
| 7.0 to 7.49 | 1.29 |
| 7.5 to 7.99 | 1.41 |
| 8.0 to 8.49 | 1.53 |
| 8.5 to 8.99 | 1.67 |
| 9.0 to 9.49 | 1.82 |
| 9.5 or greater | 1.89 |

**Note:** See the comprehensive example in s. NR 279.42 c2d ccd.

**c3d** cad In addition to the provisions contained above pertaining to COD, ammonia and sulfide, any existing point source subject to this subcategory shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable cBATd. For each of the regulated pollutant parameters listed below, the effluent limitation for a given refinery is the sum of the products of each effluent limitation factor times the applicable process feedstock rate, calculated as provided in 40 CFR 122.45 cbd.

**Note:** Applicable production processes are presented in Appendix A by process type, the process identification numbers presented in this Appendix A are for the convenience of the reader. They may be cross referenced in the Development Document for Effluent Limitations Guidelines, New Source Performances Standards, and Pretreatment Standards for the Petroleum Refining Point Source Category cEPA 440{1-82{014. Table 111-7, pp. 49-54.

40 CFR 122.45 cbd reads as follows: The calculation of any permit limitations, standards, or prohibitions which are based on production cor other measure of operationd shall be based not upon the designed production capacity but rather upon a reasonable measure of actual production of the facility, such as the production during the high month of the previous year, or the monthly average for the highest of the previous 5 years. For new sources or new dischargers, actual production shall be estimated using projected production. The time period of the measure of production shall correspond to the time period of the calculated permit limitations; for example, monthly production shall be used to calculate average monthly discharge limitations.

| Pollutant or pollutant property and process type | BAT Effluent Limitations Factor: Maximum for any 1 day | BAT Effluent Limitations Factor: Average of daily values for 30 consecutive days |
|---|---|---|
| | Metric units ckilograms per 1,000 $m^3$ of feedstockd | |
| Phenolic compounds c4AAPd: | | |
| Crude | 0.037 | 0.009 |
| Cracking and coking | 0.419 | 0.102 |
| Asphalt | 0.226 | 0.055 |
| Lube | 1.055 | 0.257 |
| Reforming and alkylation | 0.377 | 0.092 |
| Total chromium: | | |
| Crude | 0.03 | 0.011 |
| Cracking and coking | 0.34 | 0.118 |
| Asphalt | 0.183 | 0.064 |
| Lube | 0.855 | 0.297 |
| Reforming and alkylation | 0.305 | 0.106 |
| Hexavalent chromium: | | |
| Crude | 0.0019 | 0.0009 |
| Cracking and coking | 0.0218 | 0.0098 |
| Asphalt | 0.0117 | 0.0053 |
| Lube | 1.0549 | 0.0248 |
| Reforming and alkylation | 0.0196 | 0.0088 |
| | English units cpounds per 1,000 bbl of feedstockd | |
| Phenolic compounds c4AAPd: | | |
| Crude | 0.013 | 0.003 |
| Cracking and coking | 0.147 | 0.036 |
| Asphalt | 0.079 | 0.019 |
| Lube | 0.369 | 0.09 |
| Reforming and alkylation | 0.132 | 0.032 |
| Total chromium: | | |
| Crude | 0.011 | 0.004 |
| Cracking and coking | 0.119 | 0.041 |
| Asphalt | 0.064 | 0.022 |
| Lube | 0.299 | 0.104 |
| Reforming and alkylation | 0.107 | 0.037 |
| Hexavalent chromium: | | |
| Crude | 0.0007 | 0.0003 |
| Cracking and coking | 0.0076 | 0.0034 |
| Asphalt | 0.0041 | 0.0019 |
| Lube | 0.0192 | 0.0087 |
| Reforming and alkylation | 0.0089 | 0.0031 |

**Note:** See the comprehensive example in s. NR 279.43 c3d cbd.

**c4d** The provisions of s. NR 279.13 c4d apply to discharges of process wastewater pollutants attributable to ballast water by a point source subject to the provisions of this subcategory.

**c5d** The quantity and quality of pollutants or pollutant properties controlled by this subsection, attributable to once-through cooling water, are excluded from the discharge allowed by sub. c2d. Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg{l.

**c6d** The following effluent limitations constitute the quantity and quality of pollutants or pollutant properties controlled by this subsection and attributable to contaminated runoff, which may be discharged after the application of the best available technology economically achievable by a point source subject to this subcategory.

cad If wastewater consists solely of contaminated runoff and is not commingled or treated with process wastewater, it may be discharged if it does not exceed 110 mg{l total organic carbon cTOCd based upon an analysis of any single grab or composite sample.

cbd If contaminated runoff is commingled or treated with process wastewater, or if wastewater consisting solely of contaminated runoff which exceeds 110 mg{l TOC is not commingled or treated with any other type of wastewater, the quantity of pollutants discharged may not exceed the quantity determined by multiplying the flow of contaminated runoff as determined by the department times the concentrations listed in the following table:

| Pollutant or pollutant property | BAT effluent limitations: Maximum for any 1 day | BAT effluent limitations: Average of daily values for 30 consecutive days |
|---|---|---|
| | Metric units ckilograms per 1,000 cubic meters of flowd | |
| Phenolic compounds c4AAPd | 0.35 | 0.17 |
| Total chromium | 0.6 | 0.21 |
| Hexavalent chromium | 0.062 | 0.028 |
| COD[1] | 360.0 | 180.0 |
| | English units cpounds per 1,000 gallons of flowd | |
| Phenolic compounds c4AAPd | .0029 | .0014 |
| Total chromium | .005 | .0018 |
| Hexavalent chromium | .00052 | .00023 |
| COD[1] | 3.0 | 1.5 |

[1] In any case in which the applicant can demonstrate that the chloride ion concentration in the effluent exceeds 1000 mg{l c1000 ppmd, the department may substitute TOC as a parameter in lieu of COD. A TOC effluent limitation shall be based on effluent data from the particular refinery which correlates TOC to $BOD_5$. If in the judgment of the department, 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 for $BOD_5$.

**History:** Cr. Register, October, 1986, No. 370, eff. 11-1-86.

**NR 279.24 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology cBCTd. c1d** Any existing point source subject to this subcategory shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology cBCTd:

| | BCT Effluent Limitations | |
|---|---|---|
| **Pollutant or pollutant property** | **Maximum for any 1 day** | **Average of daily values for 30 consecutive days** |
| | **Metric units ckilograms per 1,000 $m^3$ of feedstockd** | |
| $BOD_5$ | 28.2 | 15.6 |
| TSS | 19.5 | 12.6 |
| Oil and grease | 8.4 | 4.5 |
| pH | c1d | c1d |
| | **English units cpounds per 1,000 bbl feedstockd** | |
| $BOD_5$ | 9.9 | 5.5 |
| TSS | 6.9 | 4.4 |
| Oil and grease | 3.0 | 1.6 |
| pH | c1d | c1d |

[1] Within the range of 6.0 to 9.0

**c2d** The limits set forth in sub. c1d shall be multiplied by the following factors to calculate the maximum for any one day and maximum average of daily values for 30 consecutive days.

cad Size factor.

| 1000 barrels of feedstock per stream day | Size factor |
|---|---|
| Less than 24.9 | 0.91 |
| 25.0 to 49.9 | 0.95 |
| 50.0 to 74.9 | 1.04 |
| 75.0 to 99.9 | 1.13 |
| 100.0 to 124.9 | 1.23 |
| 125.0 to 149.9 | 1.35 |
| 150.0 or greater | 1.41 |

cbd Process factor.

| Process configuration | Process factor |
|---|---|
| Less than 2.49 | 0.58 |
| 2.5 to 3.49 | 0.63 |
| 3.5 to 4.49 | 0.74 |
| 4.5 to 5.49 | 0.88 |
| 5.5 to 5.99 | 1.0 |
| 6.0 to 6.49 | 1.09 |
| 6.5 to 6.99 | 1.19 |
| 7.0 to 7.49 | 1.29 |
| 7.5 to 7.99 | 1.41 |
| 8.0 to 8.49 | 1.53 |
| 8.5 to 8.99 | 1.67 |
| 9.0 to 9.49 | 1.82 |
| 9.5 or greater | 1.89 |

**Note:** See the comprehensive example in s. NR 279.42 c2d ccd.

**c3d** The provisions of s. NR 279.14 c3d apply to discharges of process wastewater pollutants attributable to ballast water by a point source subject to the provisions of this subcategory.

**c4d** The quantity and quality of pollutants or pollutant properties controlled by this subsection, attributable to once-through cooling water, are excluded from the discharge allowed by sub. c2d.

**c5d** The following effluent limitations constitute the quantity and quality of pollutants or pollutant properties controlled by this subsection and attributable to contaminated runoff which may be discharged after the application of the best conventional pollutant control technology by a point source subject to this subcategory.

cad If wastewater consists solely of contaminated runoff and is not commingled or treated with process wastewater, it may be discharged if it does not exceed 15 mg{l oil and grease based upon an analysis of any single grab or composite sample.

cbd If contaminated runoff is commingled or treated with process wastewater, or if wastewater consisting solely of contaminated runoff which exceeds 15 mg{l oil and grease is not commingled or treated with any other type of wastewater, the quantity of pollutants discharged may not exceed the quantity determined by multiplying the flow of contaminated runoff as determined by the department times the concentrations listed in the following table:

| | BCT Effluent Limitations | |
|---|---|---|
| **Pollutant or pollutant property** | **Maximum for any 1 day** | **Average of daily values for 30 consecutive days** |
| | **Metric units ckilograms per 1,000 cubic meters of flowd** | |
| $BOD_5$ | 48.0 | 26.0 |
| TSS | 33.0 | 21.0 |
| Oil and grease | 15.0 | 8.0 |
| pH | c1d | c1d |
| | **English units cpounds per 1,000 gallons of flowd** | |
| $BOD_5$ | 0.4 | 0.22 |
| TSS | 0.28 | 0.18 |
| Oil and grease | 0.13 | 0.067 |
| pH | c1d | c1d |

[1] Within the range of 6.0 to 9.0

**History:** Cr. Register, October, 1986, No. 370, eff. 11-1-86.

**NR 279.25 Pretreatment standards for existing sources cPSESd.** Except as provided in 40 CFR 403.7 and 403.13, any existing source subject to this subcategory which introduces pollutants into a publicly owned treatment works shall comply with 40 CFR Part 403 and achieve the following pretreatment standards for existing sources cPSESd. The following standards apply to the total refinery flow contribution to the POTW:

| Pollutant or pollutant property | Pretreatment standards for existing sources-maximum for any 1 day |
|---|---|
| | **Milligrams per liter cmg{ld** |
| Oil and grease | 100.0 |
| Ammonia as N | [1]100.0 |

[1] Where the discharge to the POTW consists solely of sour waters, the owner or operator has the option of complying with this limit or the daily maximum mass limitation for ammonia set forth in s. NR 279.23 c1d and c2d.

**History:** Cr. Register, October, 1986, No. 370, eff. 11-1-86.

**NR 279.26 Standards of performance for new sources cNSPSd. c1d** Any new source subject to this subcategory shall achieve the following new source performance standards cNSPSd:

| | NSPS effluent limitations | |
|---|---|---|
| **Pollutant or pollutant property** | **Maximum for any 1 day** | **Average of daily values for 30 consecutive days** |
| | **Metric units ckilograms per 1,000 $m^3$ of feedstockd** | |
| $BOD_5$ | 16.3 | 8.7 |
| TSS | 11.3 | 7.2 |
| COD[1] | 118.0 | 61.0 |
| Oil and grease | 4.8 | 2.6 |
| Phenolic compounds | 0.119 | 0.058 |
| Ammonia as N | 18.8 | 8.6 |
| Sulfide | 0.105 | 0.048 |
| Total chromium | 0.24 | 0.14 |
| Hexavalent chromium | 0.02 | 0.0088 |
| pH | c2d | c2d |
| | **English units cpounds per 1,000 bbl of feedstockd** | |
| $BOD_5$ | 5.8 | 3.1 |
| TSS | 4.0 | 2.5 |
| COD[1] | 41.5 | 21.0 |
| Oil and grease | 1.7 | 0.93 |
| Phenolic compounds | 0.042 | 0.020 |
| Ammonia as N | 6.6 | 3.0 |
| Sulfide | 0.037 | 0.017 |
| Total chromium | 0.084 | 0.049 |
| Hexavalent chromium | 0.0072 | 0.0032 |
| pH | c2d | c2d |

[1] See footnote following table in s. NR 279.13 c4d.
[2] Within the range of 6.0 to 9.0.

**c2d** The limits set forth in sub. c1d shall be multiplied by the following factors to calculate the maximum for any 1 day and maximum average of daily values for 30 consecutive days.

cad Size factor.

| 1000 bbl. of feedstock per stream day | Size factor |
|---|---|
| Less than 24.9 | 0.91 |
| 25.0 to 49.9 | 0.95 |
| 50.0 to 74.9 | 1.04 |
| 75.0 to 99.9 | 1.13 |
| 100.0 to 124.9 | 1.23 |
| 125.0 to 149.9 | 1.35 |
| 150.0 or greater | 1.41 |

cbd Process factor.

| Process configuration | Process factor |
|---|---|
| Less than 2.49 | 0.58 |
| 2.5 to 3.49 | 0.63 |
| 3.5 to 4.49 | 0.74 |
| 4.5 to 5.49 | 0.88 |
| 5.5 to 5.99 | 1.0 |
| 6.0 to 6.49 | 1.09 |
| 6.5 to 6.99 | 1.19 |
| 7.0 to 7.49 | 1.29 |
| 7.5 to 7.99 | 1.41 |
| 8.0 to 8.49 | 1.53 |
| 8.5 to 8.99 | 1.67 |
| 9.0 to 9.49 | 1.82 |
| 9.5 or greater | 1.89 |

**Note:** See the comprehensive example in s. NR 279.42 c2d ccd.

**c3d** The provisions of s. NR 279.16 c3d apply to discharges of process wastewater pollutants attributable to ballast water by a point source subject to the provisions of this subcategory.

**c4d** The quantity and quality of pollutants or pollutant properties controlled by this subsection, attributable to once-through cooling water, are excluded from the discharge allowed by sub. c2d. Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg{l.

**History:** Cr. Register, October, 1986, No. 370, eff. 11-1-86.

**NR 279.27 Pretreatment standards for new sources cPSNSd.** Except as provided in 40 CFR 403.7, any new source subject to this subcategory which introduces pollutants into a publicly owned treatment works shall comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources cPSNSd:

**c1d** The following standards apply to the total refinery flow contribution to the POTW:

| Pollutant or pollutant property | Pretreatment standards for new sources - maximum for any 1 day |
|---|---|
| | Milligrams per liter cmg{ld |
| Oil and grease | 100.0 |
| Ammonia as N | [1]100.0 |

[1] Where the discharge to the POTW consists solely of sour waters, the owner or operator has the option of complying with this limit or the daily maximum mass limitation for ammonia set forth in s. NR 279.26 c1d and c2d.

**c2d** The following standard is applied to the cooling tower discharge part of the total refinery flow to the POTW by multiplying:

cad The standard;

cbd By the total refinery flow to the POTW; and

ccd By the ratio of the cooling tower discharge flow to the total refinery flow.

| Pollutant or pollutant property | Pretreatment standards for new sources - maximum for any 1 day |
|---|---|
| | Milligrams per liter cmg{ld |
| Total chromium | 1.0 |

**History:** Cr. Register, October, 1986, No. 370, eff. 11-1-86.

**NR 279.30 Applicability; description of the petrochemical subcategory.** The provisions of this subcategory are applicable to all discharges from any facility that produces petroleum products by the use of topping, cracking, and petrochemical operations whether or not the facility includes any process in addition to topping, cracking, and petrochemical operations. The provisions of this subchapter are not applicable, however, to facilities that include the processes specified in the lube or integrated subcategories.

**History:** Cr. Register, October, 1986, No. 370, eff. 11-1-86.

**NR 279.31 Specialized definitions.** For the purpose of this subchapter: XPetrochemical operationsY means the production of second-generation petrochemicals ci.e., alcohols, ketones, cumene, styrene, etc.d or first generation petrochemicals and isomerization products ci.e., BTX, olefins, cyclohexane, etc.d when 15% or more of refinery production is as first-generation petrochemicals and isomerization products.

**History:** Cr. Register, October, 1986, No. 370, eff. 11-1-86.

**NR 279.32 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available cBPTd. c1d** Except as provided in 40 CFR 125.30 - 125.32, any existing point source subject to this subcategory shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available cBPTd:

| | BPT effluent limitations | |
|---|---|---|
| Pollutant or pollutant property | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Metric units ckilograms per 1,000 $m^3$ of feedstockd | |
| $BOD_5$ | 34.6 | 18.4 |
| TSS | 23.4 | 14.8 |
| COD[1] | 210.0 | 109.0 |
| Oil and grease | 11.1 | 5.9 |
| Phenolic compounds | 0.25 | 0.12 |
| Ammonia as N | 23.4 | 10.6 |
| Sulfide | 0.22 | 0.099 |
| Total chromium | 0.52 | 0.3 |
| Hexavalent chromium | 0.046 | 0.02 |
| pH | c2d | c2d |
| | English units cpounds per 1,000 bbl of feedstockd | |
| $BOD_5$ | 12.1 | 6.5 |
| TSS | 8.3 | 5.25 |
| COD[1] | 74.0 | 38.4 |
| Oil and grease | 3.9 | 2.1 |
| Phenolic compounds | 0.088 | 0.0425 |
| Ammonia as N | 8.25 | 3.8 |
| Sulfide | 0.078 | 0.035 |
| Total chromium | 0.183 | 0.107 |
| Hexavalent chromium | 0.016 | 0.0072 |
| pH | c2d | c2d |

[1] See footnote following table in s. NR 279.13 c4d.
[2] Within the range of 6.0 to 9.0

**c2d** The limits set forth in sub. c1d shall be multiplied by the following factors to calculate the maximum for any one day and maximum average of daily values for 30 consecutive days.

cad Size factor.

| 1000 bbl. of feedstock per stream day | Size factor |
|---|---|
| Less than 24.9 | 0.73 |
| 25.0 to 49.9 | 0.76 |
| 50.0 to 74.9 | 0.83 |
| 75.0 to 99.9 | 0.91 |
| 100.0 to 124.9 | 0.99 |
| 125.0 to 149.9 | 1.08 |
| 150.0 or greater | 1.13 |

cbd Process factor.

| Process configuration | Process factor |
|---|---|
| Less than 4.49 | 0.73 |
| 4.5 to 5.49 | 0.80 |
| 5.5 to 5.99 | 0.91 |
| 6.0 to 6.49 | 0.99 |
| 6.5 to 6.99 | 1.08 |
| 7.0 to 7.49 | 1.17 |
| 7.5 to 7.99 | 1.28 |
| 8.0 to 8.49 | 1.39 |
| 8.5 to 8.99 | 1.51 |
| 9.0 to 9.49 | 1.65 |
| 9.5 or greater | 1.72 |

**Note:** See the comprehensive example in s. NR 279.42 c2d ccd.

**c3d** The provisions of s. NR 279.12 c3d apply to discharges of process wastewater pollutants attributable to ballast water by a point source subject to the provisions of this subchapter.

**c4d** The quantity and quality of pollutants or pollutant properties controlled by this subsection, attributable to once-through cooling water, are excluded from the discharge allowed by sub. c2d. Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg{l.

**c5d** The following effluent limitations constitute the quantity and quality of pollutants or pollutant properties controlled by this subsection and attributable to contaminated runoff, which may be discharged after the application of the best practicable control technology currently available by a point source subject to this subcategory.

cad If wastewater consists solely of contaminated runoff and is not commingled or treated with process wastewater, it may be discharged if it does not exceed 15 mg{l oil and grease and 110 mg{l total organic carbon cTOCd based upon an analysis of any single grab or composite sample.

cbd If contaminated runoff is commingled or treated with process wastewater, or if wastewater consisting solely of contaminated runoff which exceeds 15 mg{l oil and grease or 110 mg{l TOC is not commingled or treated with any other type of wastewater, the quantity of pollutants discharged may not exceed the quantity determined by multiplying the flow of contaminated runoff as determined by the department times the concentrations listed in the following table:

| | BPT effluent limitations | |
|---|---|---|
| **Pollutant or pollutant property** | **Maximum for any 1 day** | **Average of daily values for 30 consecutive days** |
| | **Metric units ckilograms per 1,000 cubic meters of flowd** | |
| $BOD_5$ | 48.0 | 26.0 |
| TSS | 33.0 | 21.0 |
| COD[1] | 360.0 | 180.0 |
| Oil and grease | 15.0 | 8.0 |
| Phenolic compounds c4AAPd | 0.35 | 0.17 |
| Total chromium | 0.73 | 0.43 |
| Hexavalent chromium | 0.062 | 0.028 |
| pH | c2d | c2d |
| | **English units cpounds per 1,000 gallons of flowd** | |
| $BOD_5$ | 0.4 | 0.22 |
| TSS | 0.28 | 0.18 |
| COD[1] | 3.0 | 1.5 |
| Oil and grease | 0.13 | 0.067 |
| Phenolic compounds c4AAPd | 0.0029 | 0.0014 |
| Total chromium | 0.0060 | 0.0035 |
| Hexavalent chromium | 0.00052 | 0.00023 |
| pH | c2d | c2d |

[1] In any case in which the applicant can demonstrate that the chloride ion concentration in the effluent exceeds 1,000 mg{l c1,000 ppmd, the department may substitute TOC as a parameter in lieu of COD. A TOC effluent limitation shall be based on effluent data from the particular refinery which correlates TOC to $BOD_5$. If in the judgment of the department, 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 for $BOD_5$.

[2] Within the range 6.0 to 9.0.

**History:** Cr. Register, October, 1986, No. 370, eff. 11-1-86.

**NR 279.33 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable cBATd. c1d** Except as provided in 40 CFR 125.30 - 125.32, any existing point source subject to this subcategory shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable cBATd:

| | BAT effluent limitations | |
|---|---|---|
| **Pollutant or pollutant property** | **Maximum for any 1 day** | **Average of daily values for 30 consecutive days** |
| | **Metric units ckilograms per 1,000 $m^3$ of feedstockd** | |
| COD[1] | 210.0 | 109.0 |
| Ammonia as N | 23.4 | 10.6 |
| Sulfide | 0.22 | 0.099 |
| | **English units cpounds per 1,000 bbl of feedstockd** | |
| COD[1] | 74.0 | 38.4 |
| Ammonia as N | 8.25 | 3.8 |
| Sulfide | 0.078 | 0.035 |

[1] See footnote following table in s. NR 279.13 c4d.

**c2d** The limits set forth in sub. c1d shall be multiplied by the following factors to calculate the maximum for any one day and maximum average of daily values for 30 consecutive days.

cad Size factor.

| 1000 bbl. of feedstock per stream day | Size factor |
|---|---|
| Less than 24.9 | 0.73 |
| 25.0 to 49.9 | 0.76 |
| 50.0 to 74.9 | 0.83 |
| 75.0 to 99.9 | 0.91 |
| 100.0 to 124.9 | 0.99 |
| 125.0 to 149.9 | 1.08 |
| 150.0 or greater | 1.13 |

cbd Process factor.

| Process configuration | Process factor |
|---|---|
| Less than 4.49 | 0.73 |
| 4.5 to 5.49 | 0.8 |
| 5.5 to 5.99 | 0.91 |
| 6.0 to 6.49 | 0.99 |
| 6.5 to 6.99 | 1.08 |
| 7.0 to 7.49 | 1.17 |
| 7.5 to 7.99 | 1.28 |
| 8.0 to 8.49 | 1.39 |
| 8.5 to 8.99 | 1.51 |
| 9.0 to 9.49 | 1.65 |
| 9.5 or greater | 1.72 |

**Note:** See the comprehensive example in s. NR 279.42 c2d ccd.

**c3d** In addition to the provisions contained above pertaining to COD, ammonia, and sulfide, any existing point source subject to this subcategory shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable cBATd. For each of the regulated pollutant parameters listed below, the effluent limitation for a given refinery is the sum of the products of each effluent limitation factor times the applicable process feedstock rate, calculated as provided in 40 CFR 122.45 cbd.

**Note:** Applicable production processes are presented in Appendix A by process type. The process identification numbers presented in this Appendix A are for the convenience of the reader. They can be cross-referenced in the Development Document for Effluent Limitations Guidelines, New Source Performance Standards, and Pretreatment Standards for the Petroleum Refining Point Source Category cEPA440{1-82{014d. Table III-7, pp. 49-54.

40 CFR 122.45 cbd reads as follows: The calculation of any permit limitations, standards, or prohibitions which are based on production cor other measure of operationd shall be based not upon the designed production capacity but rather upon a

reasonable measure of actual production of the facility, such as the production during the high month of the previous year, or the monthly average for the highest of the previous 5 years. For new sources or new dischargers, actual production shall be estimated using projected production. The time period of the measure of production shall correspond to the time period of the calculated permit limitations; for example, monthly production shall be used to calculate average monthly discharge limitations.

**BAT Effluent Limitations Factor**

| Pollutant or pollutant property and process type | Maximum for any 1 day | Average of daily values for 30 consecutive days |
|---|---|---|
| | **Metric units ckilograms per 1,000 $m^3$ of feedstockd** | |
| Phenolic compounds c4AAPd: | | |
| Crude | 0.037 | 0.009 |
| Cracking and coking | 0.419 | 0.102 |
| Asphalt | 0.226 | 0.055 |
| Lube | 1.055 | 0.257 |
| Reforming and alkylation | 0.377 | 0.092 |
| Total chromium: | | |
| Crude | 0.03 | 0.011 |
| Cracking and coking | 0.34 | 0.118 |
| Asphalt | 0.183 | 0.064 |
| Lube | 0.855 | 0.297 |
| Reforming and alkylation | 0.305 | 0.106 |
| Hexavalent chromium: | | |
| Crude | 0.0019 | 0.0009 |
| Cracking and coking | 0.0218 | 0.0098 |
| Asphalt | 0.0117 | 0.053 |
| Lube | 0.0549 | 0.0248 |
| Reforming and alkylation | 0.0196 | 0.0088 |
| | **English units cpounds per 1,000 bbl of feedstockd** | |
| Phenolic compounds c4AAPd: | | |
| Crude | 0.013 | 0.003 |
| Cracking and coking | 0.147 | 0.036 |
| Asphalt | 0.079 | 0.019 |
| Lube | 0.369 | 0.09 |
| Reforming and alkylation | 0.132 | 0.032 |
| Total chromium: | | |
| Crude | 0.011 | 0.004 |
| Cracking and coking | 0.119 | 0.041 |
| Asphalt | 0.064 | 0.022 |
| Lube | 0.299 | 0.104 |
| Reforming and alkylation | 0.107 | 0.037 |
| Hexavalent chromium: | | |
| Crude | 0.0007 | 0.0003 |
| Cracking and coking | 0.0076 | 0.0034 |
| Asphalt | 0.0041 | 0.0019 |
| Lube | 0.0192 | 0.0087 |
| Reforming and alkylation | 0.0089 | 0.0031 |

**Note:** See the comprehensive example in s. NR 279.43 c3d cbd.

**c4d** The provisions of s. NR 279.13 c4d apply to discharges of process wastewater pollutants attributable to ballast water by a point source subject to the provisions of this subcategory.

**c5d** The quantity and quality of pollutants or pollutant properties controlled by this subsection, attributable to once-through cooling water, are excluded from the discharge allowed by sub. c2d. Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg{l.

**c6d** The following effluent limitations constitute the quantity and quality of pollutants or pollutant properties controlled by this subsection and attributable to contaminated runoff, which may be discharged after the application of the best available technology economically achievable by a point source subject to this subcategory.

cad If wastewater consists solely of contaminated runoff and is not commingled or treated with process wastewater, it may be discharged if it does not exceed 110 mg{l total organic carbon cTOCd based upon an analysis of any single grab or composite sample.

cbd If contaminated runoff is commingled or treated with process wastewater, or if wastewater consisting solely of contaminated runoff which exceeds 110 mg{l TOC is not commingled or treated with any other type of wastewater, the quantity of pollutants discharged may not exceed the quantity determined by multiplying the flow of contaminated runoff as determined by the department times the concentrations listed in the following table:

**BAT effluent limitations**

| Pollutant or pollutant property | Maximum for any 1 day | Average of daily values for 30 consecutive days |
|---|---|---|
| | **Metric units ckilograms per 1,000 cubic meters of flowd** | |
| Phenolic compounds c4AAPd | 0.35 | 0.17 |
| Total chromium | 0.6 | 0.21 |
| Hexavalent chromium | 0.062 | 0.028 |
| COD[1] | 360.0 | 180.0 |
| | **English units cpounds per 1,000 gallons of flowd** | |
| Phenolic compounds c4AAPd | .0029 | .0014 |
| Total chromium | .005 | .0018 |
| Hexavalent chromium | .00052 | .00023 |
| COD[1] | 3.0 | 1.5 |

[1] In any case in which the applicant can demonstrate that the chloride ion concentration in the effluent exceeds 1000 mg{l c1000 ppmd, the department may substitute TOC as a parameter in lieu of COD. A TOC effluent limitation shall be based on effluent data from the particular refinery which correlates TOC to $BOD_5$. If in the judgment of the department, 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 for $BOD_5$.

**History:** Cr. Register, October, 1986, No. 370, eff. 11-1-86.

## NR 279.34 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology cBCTd.

**c1d** Any existing point source subject to this subcategory shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology cBCTd:

**BCT Effluent Limitations**

| Pollutant or pollutant property | Maximum for any 1 day | Average of daily values for 30 consecutive days |
|---|---|---|
| | **Metric units ckilograms per 1,000 $m^3$ of feedstockd** | |
| $BOD_5$ | 34.6 | 18.4 |
| TSS | 23.4 | 14.8 |
| Oil and grease | 11.1 | 5.9 |
| pH | c1d | c1d |
| | **English units cpounds per 1,000 bbl of feedstockd** | |
| $BOD_5$ | 12.1 | 6.5 |
| TSS | 8.3 | 5.25 |
| Oil and grease | 3.9 | 2.1 |
| pH | c1d | c1d |

[1] Within the range of 6.0 to 9.0.

**c2d** The limits set forth in sub. c1d shall be multiplied by the following factors to calculate the maximum for any one day and maximum average of daily values for 30 consecutive days.

cad Size factor.

| 1000 bbl. of feedstock per stream day | Size factor |
|---|---|
| Less than 24.9 | 0.73 |
| 25.0 to 49.9 | 0.76 |
| 50.0 to 74.9 | 0.83 |
| 75.0 to 99.9 | 0.91 |
| 100.0 to 124.9 | 0.99 |
| 125.0 to 149.9 | 1.08 |
| 150.0 or greater | 1.13 |

cbd Process factor.

| Process configuration | Process factor |
|---|---|
| Less than 4.49 | 0.73 |
| 4.5 to 5.49 | 0.8 |
| 5.5 to 5.99 | 0.91 |
| 6.0 to 6.49 | 0.99 |
| 6.5 to 6.99 | 1.08 |
| 7.0 to 7.49 | 1.17 |
| 7.5 to 7.99 | 1.28 |
| 8.0 to 8.49 | 1.39 |
| 8.5 to 8.99 | 1.51 |
| 9.0 to 9.49 | 1.65 |
| 9.5 or greater | 1.72 |

**Note:** See the comprehensive example in s. NR 279.42 c2d ccd.

**c3d** The provisions of s. NR 279.14 c3d apply to discharges of process wastewater pollutants attributable to ballast water by a point source subject to the provisions of this subcategory.

**c4d** The quantity and quality of pollutants or pollutant properties controlled by this subsection, attributable to once-through cooling water, are excluded from the discharge allowed by sub. c2d.

**c5d** The following effluent limitations constitute the quantity and quality of pollutants or pollutant properties controlled by this subsection and attributable to contaminated runoff which may be discharged after the application of the best conventional pollutant control technology by a point source subject to this subcategory.

cad If wastewater consists solely of contaminated runoff and is not commingled or treated with process wastewater, it may be discharged if it does not exceed 15 mg{l oil and grease based upon an analysis of any single grab or composite sample.

cbd If contaminated runoff is commingled or treated with process wastewater, or if wastewater consisting solely of contaminated runoff which exceeds 15 mg{l oil and grease is not commingled or treated with any other type of wastewater, the quantity of pollutants discharged may not exceed the quantity determined by multiplying the flow of contaminated runoff as determined by the department times the concentrations listed in the following table.

| | BCT Effluent Limitations | |
|---|---|---|
| **Pollutant or pollutant property** | **Maximum for any 1 day** | **Average of daily values for 30 consecutive days** |
| | **Metric units ckilograms per 1,000 cubic meters of flowd** | |
| $BOD_5$ | 48.0 | 26.0 |
| TSS | 33.0 | 21.0 |
| Oil and grease | 15.0 | 8.0 |
| pH | c1d | c1d |
| | **English units cpounds per 1,000 gallons of flowd** | |
| $BOD_5$ | 0.4 | 0.22 |
| TSS | 0.28 | 0.18 |
| Oil and grease | 0.13 | 0.067 |
| pH | c1d | c1d |

[1] Within the range of 6.0 to 9.0.

**History:** Cr. Register, October, 1986, No. 370, eff. 11-1-86.

**NR 279.35 Pretreatment standards for existing sources cPSESd.** Except as provided in 40 CFR 403.7 and 403.13, any existing source subject to this subcategory which introduces pollutants into a publicly owned treatment works shall comply with 40 CFR Part 403 and achieve the following pretreatment standards for existing sources cPSESd. The following standards apply to the total refinery flow contribution to the POTW:

| Pollutant or pollutant property | Pretreatment standards for existing sources - maximum for any 1 day |
|---|---|
| | **Milligrams per liter cmg{ld** |
| Oil and grease | 100.0 |
| Ammonia as N | [1]100.0 |

[1]Where the discharge to the POTW consists solely of sour waters, the owner or operator has the option of complying with this limit or the daily maximum mass limitation for ammonia set forth in s. NR 279.33 c1d and c2d.

**History:** Cr. Register, October, 1986, No. 370, eff. 11-1-86.

**NR 279.36 Standards of performance for new sources cNSPSd. c1d** Any new source subject to this subcategory shall achieve the following new source performance standards cNSPSd:

| | NSPS effluent limitations | |
|---|---|---|
| **Pollutant or pollutant property** | **Maximum for any 1 day** | **Average of daily values for 30 consecutive days** |
| | **Metric units ckilograms per 1,000 $m^3$ of feedstockd** | |
| $BOD_5$ | 21.8 | 11.6 |
| TSS | 14.9 | 9.5 |
| COD[1] | 133.0 | 69.0 |
| Oil and grease | 6.6 | 3.5 |
| Phenolic compounds | 0.158 | 0.077 |
| Ammonia as N | 23.4 | 10.7 |
| Sulfide | 0.14 | 0.063 |
| Total chromium | 0.32 | 0.19 |
| Hexavalent chromium | 0.025 | 0.012 |
| pH | c2d | c2d |
| | **English units cpounds per 1,000 bbl of feedstockd** | |
| $BOD_5$ | 7.7 | 4.1 |
| TSS | 5.2 | 3.3 |
| COD[1] | 47.0 | 24.0 |
| Oil and grease | 2.4 | 1.3 |
| Phenolic compounds | 0.056 | 0.027 |
| Ammonia as N | 8.3 | 3.8 |
| Sulfide | 0.05 | 0.022 |
| Total chromium | 0.116 | 0.068 |
| Hexavalent chromium | 0.0096 | 0.0044 |
| pH | c2d | c2d |

[1] See footnote following table in s. NR 279.13 c4d.
[2] Within the range of 6.0 to 9.0.

**c2d** The limits set forth in sub. c1d shall be multiplied by the following factors to calculate the maximum for any one day and maximum average of daily values for 30 consecutive days.

cad Size factor.

| 1000 bbl. of feedstock per stream day | Size factor |
|---|---|
| Less than 24.9 | 0.73 |
| 25.0 to 49.9 | 0.76 |
| 50.0 to 74.9 | 0.83 |
| 75.0 to 99.9 | 0.91 |
| 100.0 to 124.9 | 0.99 |
| 125.0 to 149.9 | 1.08 |
| 150.0 or greater | 1.13 |

cbd Process factor.

| Process configuration | Process factor |
|---|---|
| Less than 4.49 | 0.73 |
| 4.5 to 5.49 | 0.8 |
| 5.5 to 5.99 | 0.91 |
| 6.0 to 6.49 | 0.99 |
| 6.5 to 6.99 | 1.08 |
| 7.0 to 7.49 | 1.17 |
| 7.5 to 7.99 | 1.28 |
| 8.0 to 8.49 | 1.39 |
| 8.5 to 8.99 | 1.51 |
| 9.0 to 9.49 | 1.65 |
| 9.5 or greater | 1.72 |

**Note:** See the comprehensive example in s. NR 279.42 c2d ccd.

**c3d** The provisions of s. NR 279.16 c3d apply to discharges of process wastewater pollutants attributable to ballast water by a point source subject to the provisions of this subcategory.

**c4d** The quantity and quality of pollutants or pollutant properties controlled by this subsection, attributable to once-through

cooling water, are excluded from the discharge allowed by sub. c2d. Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg{l.

**History:** Cr. Register, October, 1986, No. 370, eff. 11-1-86.

**NR 279.37 Pretreatment standards for new sources cPSNSd.** Except as provided in 40 CFR 403.7, any new source subject to this subcategory which introduces pollutants into a publicly owned treatment works shall comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources cPSNSd.

**c1d** The following standards apply to the total refinery flow contribution to the POTW.

| Pollutant or pollutant property | Pretreatment standards for new sources-maximum for any 1 day |
|---|---|
| | Milligrams per liter cmg{ld |
| Oil and grease | 100.0 |
| Ammonia as N | [1]100.0 |

[1] Where the discharge to the POTW consists solely of sour waters, the owner or operator has the option of complying with this limit or the daily maximum mass limitation for ammonia set forth in s. NR 279.36 c1d and c2d.

**c2d** The following standard is applied to the cooling tower discharge part of the total refinery flow to the POTW by multiplying:

cad The standard;

cbd By the total refinery flow to the POTW; and

ccd By the ratio of the cooling tower discharge flow to the total refinery flow.

| Pollutant or pollutant property | Pretreatment standards for new sources - maximum for any 1 day |
|---|---|
| | Milligrams per liter cmg{ld |
| Total chromium | 1.0 |

**History:** Cr. Register, October, 1986, No. 370, eff. 11-1-86.

**NR 279.40 Applicability; description of the lube subcategory.** The provisions of this subcategory are applicable to all discharges from any facility that 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 of this subcategory are not applicable, however, to facilities that include the processes specified in the petrochemical and integrated subcategories.

**History:** Cr. Register, October, 1986, No. 370, eff. 11-1-86.

**NR 279.42 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available cBPTd. c1d** Except as provided in 40 CFR 125.30 - 125.32 any existing point source subject to this subcategory shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available cBPTd:

| Pollutant or pollutant property | BPT effluent limitations: Maximum for any 1 day | BPT effluent limitations: Average of daily values for 30 consecutive days |
|---|---|---|
| | Metric units ckilograms per 1,000 $m^3$ of feedstockd | |
| $BOD_5$ | 50.6 | 25.8 |
| TSS | 35.6 | 22.7 |
| COD[1] | 360.0 | 187.0 |
| Oil and grease | 16.2 | 8.5 |
| Phenolic compounds | 0.38 | 0.184 |
| Ammonia as N | 23.4 | 10.6 |
| Sulfide | 0.33 | 0.150 |
| Total chromium | 0.77 | 0.45 |
| Hexavalent chromium | 0.068 | 0.03 |
| pH | c2d | c2d |
| | English units cpounds per 1,000 bbl of feedstockd | |
| $BOD_5$ | 17.9 | 9.1 |
| TSS | 12.5 | 8.0 |
| COD[1] | 127.0 | 66.0 |
| Oil and grease | 5.7 | 3.0 |
| Phenolic compounds | 0.133 | 0.065 |
| Ammonia as N | 8.3 | 3.8 |
| Sulfide | 0.118 | 0.053 |
| Total chromium | 0.273 | 0.16 |
| Hexavalent chromium | 0.024 | 0.011 |
| pH | c2d | c2d |

[1] See footnote following table in s. NR 279.13 c4d.

[2] Within the range of 6.0 to 9.0.

**c2d** The limits set forth in sub. c1d shall be multiplied by the following factors to calculate the maximum for any one day and maximum average of daily values for 30 consecutive days.

cad Size factor.

| 1000 bbl. of feedstock per stream | Size factor |
|---|---|
| Less than 49.9 | 0.71 |
| 50.0 to 74.9 | 0.74 |
| 75.0 to 99.9 | 0.81 |
| 100.0 to 124.9 | 0.88 |
| 125.0 to 149.9 | 0.97 |
| 150.0 to 174.9 | 1.05 |
| 175.0 to 199.9 | 1.14 |
| 200.0 or greater | 1.19 |

cbd Process factor.

| Process configuration | Process factor |
|---|---|
| Less than 6.49 | 0.81 |
| 6.5 to 7.49 | 0.88 |
| 7.5 to 7.99 | 1.0 |
| 8.0 to 8.49 | 1.09 |
| 8.5 to 8.99 | 1.19 |
| 9.0 to 9.49 | 1.29 |
| 9.5 to 9.99 | 1.41 |
| 10.0 to 10.49 | 1.53 |
| 10.5 to 10.99 | 1.67 |
| 11.0 to 11.49 | 1.82 |
| 11.5 to 11.99 | 1.98 |
| 12.0 to 12.49 | 2.15 |
| 12.5 to 12.99 | 2.34 |
| 13.0 or greater | 2.44 |

ccd Example of the application of the above factors. Example — Lube refinery 125,000 bbl per steam day throughout.

**Calculations of the Process Configuration**

| Process category | Process included | Weighting factor |
|---|---|---|
| Crude | Atm crude distillation | 1 |
| | Vacuum, crude distillation | |
| | Desalting | |
| Cracking and coking | Fluid cat. cracking | 6 |
| | Visbreaking | |
| | Thermal cracking | |
| | Moving bed cat. cracking | |
| | Hydrocracking | |
| | Fluid coking | |
| | Delayed coking | |
| Lube | Further defined in the development document | 13 |
| Asphalt | Asphalt production | 12 |
| | Asphalt oxidation | |
| | Asphalt emulsifying | |

| Process | Capacity c1,000 bbl per stream dayd | Capacity relative to throughput | Weighting factor | Processing configuration |
|---|---|---|---|---|
| Crude: | | | | |
| Atm | 125.0 | 1.0 | | |
| Vacuum | 60.0 | 0.48 | | |
| Desalting | 125.0 | 1.0 | | |
| Total | | 2.48 | x1 | =2.48 |
| Cracking: | | | | |
| FCC | 41.0 | 0.328 | | |
| Hydro-cracking | 20.0 | 0.16 | | |
| Total | | 0.488 | x6 | =2.93 |
| Lubes | 5.3 | 0.042 | | |
| | 4.0 | 0.032 | | |
| | 4.9 | 0.039 | | |
| Total | | 0.113 | x13 | =1.47 |
| Asphalt | 4.0 | 0.032 | x12 | =0.88 |
| Refinery process configuration | | | | =7.26 |

**Notes:** See table s. NR 279.42 c2d cbd for process factor. Process factor = 0.88.

See Table s. NR 279.42 c2d cad for size factor for 125,000 bbl per stream day lube refinery. Size factor = 0.97.

To calculate the limits for each parameter, multiply the limit s. NR 279.42 c1d by both the process factor and size factor. $BOD_5$ limit cmaximum for any 1 dayd = 17.9 x 0.88 x 0.97 = 15.3 lb. per 1,000 bbl of feedstock.

**c3d** The provisions of s. NR 279.12 c3d apply to discharges of process wastewater pollutants attributable to ballast water by a point source subject to the provisions of this subcategory.

**c4d** The quantity and quality of pollutants or pollutant properties controlled by this subsection, attributable to once-through cooling water, are excluded from the discharge allowed by sub. c2d. Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg{l.

**c5d** The following effluent limitations constitute the quantity and quality of pollutants or pollutant properties controlled by this subsection and attributable to contaminated runoff, which may be discharged after the application of the best practicable control technology currently available by a point source subject to this subcategory.

cad If wastewater consists solely of contaminated runoff and is not commingled or treated with process wastewater, it may be discharged if it does not exceed 15 mg{l oil and grease and 110 mg{l total organic carbon cTOCd based upon an analysis of any single grab or composite sample.

cbd If contaminated runoff is commingled or treated with process wastewater, or if wastewater consisting solely of contaminated runoff which exceeds 15 mg{l oil and grease or 110 mg{l TOC is not commingled or treated with any other type of wastewater, the quantity of pollutants discharged may not exceed the quantity determined by multiplying the flow of contaminated runoff as determined by the department times the concentrations listed in the following table:

| Pollutant or pollutant property | BPT effluent limitations: Maximum for any 1 day | BPT effluent limitations: Average of daily values for 30 consecutive days |
|---|---|---|
| | Metric units ckilograms per 1,000 cubic meters of flowd | |
| $BOD_5$ | 48.0 | 26.0 |
| TSS | 33.0 | 21.0 |
| COD[1] | 360.0 | 180.0 |
| Oil and grease | 15.0 | 8.0 |
| Phenolic compounds c4AAPd | 0.35 | 0.17 |
| Total chromium | 0.73 | 0.43 |
| Hexavalent chromium | 0.062 | 0.028 |
| pH | c2d | c2d |
| | English units cpounds per 1,000 gallons of flowd | |
| $BOD_5$ | 0.4 | 0.22 |
| TSS | 0.28 | 0.18 |
| COD[1] | 3.0 | 1.5 |
| Oil and grease | 0.13 | 0.067 |
| Phenolic compounds c4AAPd | 0.0029 | 0.0014 |
| Total chromium | 0.006 | 0.0035 |
| Hexavalent chromium | 0.00052 | 0.00023 |
| pH | c2d | c2d |

[1] In any case in which the applicant can demonstrate that the chloride ion concentration in the effluent exceeds 1,000 mg{l c1,000 ppmd, the department may substitute TOC as a parameter in lieu of COD. A TOC effluent limitation shall be based on effluent data from the particular refinery which correlates TOC to $BOD_5$. If in the judgment of the department, 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 for $BOD_5$.

[2] Within the range 6.0 to 9.0.

**History:** Cr. Register, October, 1986, No. 370, eff. 11-1-86.

**NR 279.43 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable cBATd. c1d** Except as provided in 40 CFR 125.30-125.32, any existing point source subject to this subcategory shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable cBATd:

| Pollutant or pollutant property | BAT effluent limitations: Maximum for any 1 day | BAT effluent limitations: Average of daily values for 30 consecutive days |
|---|---|---|
| | Metric units ckilograms per 1,000 $m^3$ of feedstockd | |
| COD[1] | 360.0 | 187.0 |
| Ammonia as N | 23.4 | 10.6 |
| Sulfide | 0.33 | 0.15 |
| | English units cpounds per 1,000 bbl of feedstockd | |
| COD[1] | 127.0 | 66.0 |
| Ammonia as N | 8.3 | 3.8 |
| Sulfide | 0.118 | 0.053 |

[1] See footnote following table in s. NR 279.13 c4d.

**c2d** The limits set forth in sub. c1d shall be multiplied by the following factors to calculate the maximum for any one day and maximum average of daily values for 30 consecutive days.

cad Size factor.

| 1000 bbl. of feedstock per stream day | Size factor |
|---|---|
| Less than 49.9 | 0.71 |
| 50.0 to 74.9 | 0.74 |
| 75.0 to 99.9 | 0.81 |
| 100.0 to 124.9 | 0.88 |
| 125.0 to 149.9 | 0.97 |
| 150.0 to 174.9 | 1.05 |
| 175.0 to 199.9 | 1.14 |
| 200.0 or greater | 1.19 |

cbd Process factor.

| Process configuration | Process factor |
|---|---|
| Less than 6.49 | 0.81 |
| 6.5 to 7.49 | 0.88 |
| 7.5 to 7.99 | 1.0 |
| 8.0 to 8.49 | 1.09 |
| 8.5 to 8.99 | 1.19 |
| 9.0 to 9.49 | 1.29 |
| 9.5 to 9.99 | 1.41 |
| 10.0 to 10.49 | 1.53 |
| 10.5 to 10.99 | 1.67 |
| 11.0 to 11.49 | 1.82 |
| 11.5 to 11.99 | 1.98 |
| 12.0 to 12.49 | 2.15 |
| 12.5 to 12.99 | 2.34 |
| 13.0 or greater | 2.44 |

**Note:** See the comprehensive example in s. NR 279.42 c2d ccd.

**c3d** cad In addition to the provisions contained above pertaining to COD, ammonia and sulfide any existing point source subject to this subcategory shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable cBATd. For each of the regulated pollutant parameters listed below, the effluent limitation for a given refinery is the sum of the products of each effluent limitation factor times the applicable refinery process feedstock rate, calculated as provided in 40 CFR 122.45 cbd.

**Note:** Applicable production processes are presented in Appendix A by process type. the process identification numbers presented in this Appendix A are for the convenience of the reader. They may be cross referenced in the Development Document for Effluent Limitations Guidelines, New Source Performances Standards, and Pretreatment Standards for the Petroleum Refining Point Source Category cEPA 440{1-82{014. Table 111-7, pp. 49-54.

40 CFR 122.45 cbd reads as follows: The calculation of any permit limitations, standards, or prohibitions which are based on production cor other measure of operationd shall be based not upon the designed production capacity but rather upon a reasonable measure of actual production of the facility, such as the production during the high month of the previous year, or the monthly average for the highest of the previous 5 years. For new sources or new dischargers, actual production shall be estimated using projected production. The time period of the measure of production shall correspond to the time period of the calculated permit limitations; for example, monthly production shall be used to calculate average monthly discharge limitations.

| | BAT effluent limitation factor | |
|---|---|---|
| Pollutant or pollutant property and process type | Maximum for any 1 day | Average of daily values for 30 consecutive days |
| | Metric units ckilograms per 1,000 $m^3$ of feedstockd | |
| Phenolic compounds c4AAPd: | | |
| Crude | 0.037 | 0.009 |
| Cracking and coking | 0.419 | 0.102 |
| Asphalt | 0.226 | 0.055 |
| Lube | 1.055 | 0.257 |
| Reforming and alkylation | 0.377 | 0.092 |
| Total chromium: | | |
| Crude | 0.03 | 0.011 |
| Cracking and coking | 0.34 | 0.118 |
| Asphalt | 0.183 | 0.064 |
| Lube | 0.855 | 0.297 |
| Reforming and alkylation | 0.305 | 0.106 |
| Hexavalent chromium: | | |
| Crude | 0.0019 | 0.0009 |
| Cracking and coking | 0.0218 | 0.0096 |
| Asphalt | 0.0117 | 0.0053 |
| Lube | 0.0549 | 0.0248 |
| Reforming and alkylation | 0.0196 | 0.0088 |
| Phenolic compounds c4AAPd: | | |
| Crude | 0.013 | 0.003 |
| Cracking and coking | 0.147 | 0.036 |
| Asphalt | 0.079 | 0.019 |
| Lube | 0.369 | 0.09 |
| Reforming and alkylation | 0.132 | 0.032 |
| Total chromium: | | |
| Crude | 0.011 | 0.004 |
| Cracking and coking | 0.119 | 0.041 |
| Asphalt | 0.064 | 0.022 |
| Lube | 0.299 | 0.104 |
| Reforming and alkylation | 0.107 | 0.037 |
| Hexavalent chromium: | | |
| Crude | 0.0007 | 0.0003 |
| Cracking and coking | 0.0076 | 0.0034 |
| Asphalt | 0.0041 | 0.0019 |
| Lube | 0.0192 | 0.0087 |
| Reforming and alkylation | 0.0069 | 0.0031 |
| | English units cpounds per 1,000 bbl of feedstockd | |

cbd Example application of effluent limitations guidelines as applicable to phenolic compounds, hexavalent chromium and total chromium. The following example presents the derivation of a BAT phenolic compounds c4AAPd effluent limitation c30 day averaged for a petroleum refinery permit. This methodology is also applicable to hexavalent chromium and total chromium.

| Refinery process | Process feedstock rate 1,000 bbl{day |
|---|---|
| 1. Atmospheric crude distillation | 100 |
| 2. Crude desalting | 50 |
| 3. Vacuum crude distillation | 75 |
| Total crude processes cCd | 225 |
| 6. Fluid catalytic cracking | 25 |
| 10. Hydrocracking | 20 |
| Total cracking and coking processes cKd | 45 |
| 18. Asphalt production: Total asphalt processes cAd | 5 |
| 21. Hydrofining: Total lube processes cLd | 3 |
| 8. Catalytic reforming: Total reforming and alkylation processes cRd | 10 |

**Note:** -30 = day average phenolic compounds c4AAPd discharge, lb{day c0.003dc225d + c0.036dc45d + c0.019d c5d + c0.09dc3d + c0.032dc10d +2.98 lb{day.

**c4d** The provisions of s. NR 279.13 c4d apply to discharges of process wastewater pollutants attributable to ballast water by a point source subject to the provisions of this subcategory.

**c5d** The quantity and quality of pollutants or pollutant properties controlled by this subsection, attributable to once-through cooling water, are excluded from the discharge allowed by sub. c2d. Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg{l.

**c6d** The following effluent limitations constitute the quantity and quality of pollutants or pollutant properties controlled by this subsection and attributable to contaminated runoff, which may be discharged after the application of the best available technology economically achievable by a point source subject to this subcategory.

cad If wastewater consists solely of contaminated runoff and is not commingled or treated with process wastewater, it may be discharged if it does not exceeds 110 mg{l total organic carbon cTOCd based upon an analysis of any single grab or composite sample.

cbd If contaminated runoff is commingled or treated with process wastewater, or if wastewater consisting solely of contaminated runoff which exceeds 110 mg{l TOC is not commingled or treated with any other type of wastewater, the quantity of pollutants discharged may not exceed the quantity determined by multiplying the flow of contaminated runoff as determined by the department times the concentrations listed in the following table:

| Pollutant or pollutant property | BAT effluent limitations Maximum for any 1 day | Average of daily values for 30 consecutive days |
|---|---|---|
| | Metric units ckilograms per 1,000 cubic meters of flowd | |
| Phenolic compounds c4AAPd | 0.35 | 0.17 |
| Total chromium | 0.6 | 0.21 |
| Hexavalent chromium | 0.062 | 0.028 |
| COD[1] | 360.0 | 180.0 |
| | English units cpounds per 1,000 gallons of flowd | |
| Phenolic compounds c4AAPd | .0029 | .0014 |
| Total chromium | .005 | .0018 |
| Hexavalent chromium | .00052 | .00023 |
| COD[1] | 3.0 | 1.5 |

[1] In any case in which the applicant can demonstrate that the chloride ion concentration in the effluent exceeds 1000 mg{l c1000 ppmd, the department may substitute TOC as a parameter in lieu of COD. A TOC effluent limitation shall be based on effluent data from the particular refinery which correlates TOC to $BOD_5$. If in the judgment of the department, 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 for $BOD_5$.

**History:** Cr. Register, October, 1986, No. 370, eff. 11-1-86.

**NR 279.44 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology cBCTd. c1d** Any existing point source subject to this subcategory shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology cBCTd:

| Pollutant or pollutant property | BCT Effluent Limitations Maximum for any 1 day | Average of daily values for 30 consecutive days |
|---|---|---|
| | Metric units ckilograms per 1,000 $m^3$ of feedstockd | |
| $BOD_5$ | 50.6 | 25.8 |
| TSS | 35.6 | 22.7 |
| Oil and grease | 16.2 | 8.5 |
| pH | c1d | c1d |
| | English units cpounds per 1,000 bbl of feedstockd | |
| $BOD_5$ | 17.9 | 9.1 |
| TSS | 12.5 | 8.0 |
| Oil and grease | 5.7 | 3.0 |
| pH | c1d | c1d |

[1] Within the range of 6.0 to 9.0.

**c2d** The limits set forth in sub. c1d shall be multiplied by the following factors to calculate the maximum for any one day and maximum average of daily values for 30 consecutive days.

cad Size factor.

| 1000 bbl. of feedstock per stream day | Size factor |
|---|---|
| Less than 49.9 | 0.71 |
| 50.0 to 74.9 | 0.74 |
| 75.0 to 99.9 | 0.81 |
| 100.0 to 124.9 | 0.88 |
| 125.0 to 149.9 | 0.97 |
| 150.0 to 174.9 | 1.05 |
| 175.0 to 199.9 | 1.14 |
| 200.0 or greater | 1.19 |

cbd Process factor.

| Process configuration | Process factor |
|---|---|
| Less than 6.49 | 0.81 |
| 6.5 to 7.49 | 0.88 |
| 7.5 to 7.99 | 1.0 |
| 8.0 to 8.49 | 1.09 |
| 8.5 to 8.99 | 1.19 |
| 9.0 to 9.49 | 1.29 |
| 9.5 to 9.99 | 1.41 |
| 10.0 to 10.49 | 1.53 |
| 10.5 to 10.99 | 1.67 |
| 11.0 to 11.49 | 1.82 |
| 11.5 to 11.99 | 1.98 |
| 12.0 to 12.49 | 2.15 |
| 12.5 to 12.99 | 2.34 |
| 13.0 or greater | 2.44 |

**c3d** The provisions of s. NR 279.14c3d apply to discharges of process wastewater pollutants attributable to ballast water by a point source subject to the provisions of this subcategory.

**c4d** The quantity and quality of pollutants or pollutant properties controlled by this subsection, attributable to once-through cooling water, are excluded from the discharge allowed by sub. c2d.

**c5d** The following effluent limitations constitute the quantity and quality of pollutants or pollutant properties controlled by this subsection and attributable to contaminated runoff which may be discharged after the application of the best conventional pollutant control technology by a point source subject to this subcategory.

cad If wastewater consists solely of contaminated runoff and is not commingled or treated with process wastewater, it may be discharged if it does not exceed 15 mg{l oil and grease based upon an analysis of any single grab or composite sample.

cbd If contaminated runoff is commingled or treated with process wastewater, or if wastewater consisting solely of contaminated runoff which exceed 110 mg{l oil and grease is not commingled or treated with any other type of wastewater, the quantity of pollutants discharged may not exceed the quantity determined by multiplying the flow of contaminated runoff as determined by the department times the concentrations listed in the following table:

| Pollutant or pollutant property | BCT Effluent Limitations Maximum for any 1 day | Average of daily values for 30 consecutive days |
|---|---|---|
| | Metric units ckilograms per 1,000 cubic meters of flowd | |
| $BOD_5$ | 48.0 | 26.0 |
| TSS | 33.0 | 21.0 |
| Oil and grease | 15.0 | 8.0 |
| pH | c1d | c1d |
| | English units cpounds per 1,000 gallons of flowd | |
| $BOD_5$ | 0.4 | 0.22 |
| TSS | 0.28 | 0.18 |
| Oil and grease | 0.13 | 0.067 |
| pH | c1d | c1d |

[1] Within the range of 6.0 to 9.0.

**History:** Cr. Register, October, 1986, No. 370, eff. 11-1-86.

**NR 279.45 Pretreatment standards for existing sources cPSESd.** Except as provided in 40 CFR 403.7 and 403.13 any existing source subject to this subcategory which introduces pollutants into a publicly owned treatment works shall comply with 40 CFR Part 403 and achieve the following pretreat-

ment standards for existing sources cPSESd. The following standards apply to the total refinery flow contribution to the POTW:

| Pollutant or pollutant property | Pretreatment standards for existing sources - maximum for any 1 day |
|---|---|
| | Milligrams per liter cmg{ld |
| Oil and grease | 100.0 |
| Ammonia as N | [1]100.0 |

[1] Where the discharge to the POTW consists solely of sour waters, the owner or operator has the option of complying with this limit or the daily maximum mass limitation for ammonia set forth in s. NR 279.43 c1d and c2d.

**History:** Cr. Register, October, 1986, No. 370, eff. 11-1-86.

**NR 279.46 Standards of performance for new sources cNSPSd. c1d** Any new source subject to this subcategory shall achieve the following new source performance standards cNSPSd:

| Pollutant or pollutant property | NSPS effluent limitations: Maximum for any 1 day | NSPS effluent limitations: Average of daily values for 30 consecutive days |
|---|---|---|
| | Metric units ckilograms per 1,000 $m^3$ of feedstockd | |
| $BOD_5$ | 34.6 | 18.4 |
| TSS | 23.4 | 14.9 |
| COD[1] | 245.0 | 126.0 |
| Oil and grease | 10.5 | 5.6 |
| Phenolic compounds | 0.25 | 0.12 |
| Ammonia as N | 23.4 | 10.7 |
| Sulfide | 0.22 | 0.1 |
| Total chromium | 0.52 | 0.31 |
| Hexavalent chromium | 0.046 | 0.021 |
| pH | c2d | c2d |
| | English units cpounds per 1,000 bbl of feedstockd | |
| $BOD_5$ | 12.2 | 6.5 |
| TSS | 8.3 | 5.3 |
| COD[1] | 87.0 | 45.0 |
| Oil and grease | 3.8 | 2.0 |
| Phenolic compounds | 0.088 | 0.043 |
| Ammonia as N | 8.3 | 3.8 |
| Sulfide | 0.078 | 0.035 |
| Total chromium | 0.18 | 0.105 |
| Hexavalent chromium | 0.022 | 0.0072 |
| pH | c2d | c2d |

[1] See footnote following table in s. NR 279.13 c4d.

[2] Within the range of 6.0 to 9.0.

**c2d** The limits set forth in sub. c1d shall be multiplied by the following factors to calculate the maximum for any 1 day and maximum average of daily values for 30 consecutive days.

cad Size factor.

| 1000 bbl. of feedstock per stream day | Size factor |
|---|---|
| Less than 49.9 | 0.71 |
| 50.0 to 74.9 | 0.74 |
| 75.0 to 99.9 | 0.81 |
| 100.0 to 124.9 | 0.88 |
| 125.0 to 149.9 | 0.97 |
| 150.0 to 174.9 | 1.05 |
| 175.0 to 199.9 | 1.14 |
| 200.0 or greater | 1.19 |

cbd Process factor.

| Process configuration | Process factor |
|---|---|
| Less than 6.49 | 0.81 |
| 6.5 to 7.49 | 0.88 |
| 7.5 to 7.99 | 1.0 |
| 8.0 to 8.49 | 1.09 |
| 8.5 to 8.99 | 1.19 |
| 9.0 to 9.49 | 1.29 |
| 9.5 to 9.99 | 1.41 |
| 10.0 to 10.49 | 1.53 |
| 10.5 to 10.99 | 1.67 |
| 11.0 to 11.49 | 1.82 |
| 11.5 to 11.99 | 1.98 |
| 12.0 to 12.49 | 2.15 |
| 12.5 to 12.99 | 2.34 |
| 13.0 or greater | 2.44 |

**Note:** See the comprehensive example in s. NR 279.42 c2d ccd.

**c3d** The provisions of s. NR 279.16 c3d apply to discharges of process wastewater pollutants attributable to ballast water by a point source subject to the provisions of this subcategory.

**c4d** The quantity and quality of pollutants or pollutant properties controlled by this subsection, attributable to once-through cooling water, are excluded from the discharge allowed by sub. c2d. Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg{l.

**History:** Cr. Register, October, 1986, No. 370, eff. 11-1-86.

**NR 279.47 Pretreatment standards for new sources cPSNSd.** Except as provided in 40 CFR 403.7, any new source subject to this subcategory which introduces pollutants into a publicly owned treatment works shall comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources cPSNSd.

**c1d** The following standards apply to the total refinery flow contribution to the POTW.

| Pollutant or pollutant property | Pretreatment standards for new sources - maximum for any 1 day |
|---|---|
| | Milligrams per liter cmg{ld |
| Oil and grease | 100.0 |
| Ammonia as N | [1]100.0 |

[1]Where the discharge to the POTW consists solely of sour waters, the owner or operator has the option of complying with this limit or the daily maximum mass limitation for ammonia set forth in s. NR 279.46 c1d and c2d.

**c2d** The following standard is applied to the cooling tower discharge part of the total refinery flow to the POTW by multiplying:

cad The standard;

cbd By the total refinery flow to the POTW; and

ccd By the ratio of the cooling tower discharge flow to the total refinery flow.

| Pollutant or pollutant property | Pretreatment standards for new sources - maximum for any 1 day |
|---|---|
| | Milligrams per liter cmg{ld |
| Total chromium | 1.0 |

**History:** Cr. Register, October, 1986, No. 370, eff. 11-1-86.

**NR 279.50 Applicability; description of the integrated subcategory.** The provisions of this subcategory are applicable to all discharges resulting from any facility that 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.

**History:** Cr. Register, October, 1986, No. 370, eff. 11-1-86.

**NR 279.52 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available cBPTd. c1d** Except as provided in 40 CFR 125.30-125.32 any existing point source subject to this subcategory shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available cBPTd:

| Pollutant or pollutant property | BPT effluent limitations: Maximum for any 1 day | BPT effluent limitations: Average of daily values for 30 consecutive days |
|---|---|---|
| | Metric units ckilograms per 1,000 $m^3$ of feedstockd | |
| $BOD_5$ | 54.4 | 28.9 |
| TSS | 37.3 | 23.7 |
| COD[1] | 388.0 | 198.0 |
| Oil and grease | 17.1 | 9.1 |
| Phenolic compounds | 0.4 | 0.192 |
| Ammonia as N | 23.4 | 10.6 |
| Sulfide | 0.35 | 0.158 |
| Total chromium | 0.82 | 0.48 |
| Hexavalent chromium | 0.068 | 0.032 |
| pH | c2d | c2d |
| | English units cpounds per 1,000 bbl of feedstockd | |
| $BOD_5$ | 19.2 | 10.2 |
| TSS | 13.2 | 8.4 |
| COD[1] | 136.0 | 70.0 |
| Oil and grease | 6.0 | 3.2 |
| Phenolic compounds | 0.14 | 0.068 |
| Ammonia as N | 8.3 | 3.8 |
| Sulfide | 0.124 | 0.056 |
| Total chromium | 0.29 | 0.17 |
| Hexavalent chromium | 0.025 | 0.011 |
| pH | c2d | c2d |

[1] See footnote following table in s. NR 279.13 c4d.
[2] Within the range of 6.0 to 9.0.

**c2d** The limits set forth in sub. c1d shall be multiplied by the following factors to calculate the maximum for any one day and maximum average of daily values for 30 consecutive days.

cad Size factor.

| 1000 bbl. of feedstock per stream day | Size factor |
|---|---|
| Less than 124.9 | 0.73 |
| 125.0 to 149.9 | 0.76 |
| 150.0 to 174.9 | 0.83 |
| 175.0 to 199.9 | 0.91 |
| 200.0 to 224.9 | 0.99 |
| 225.0 or greater | 1.04 |

cbd Process factor.

| Process configuration | Process factor |
|---|---|
| Less than 6.49 | 0.75 |
| 6.5 to 7.49 | 0.82 |
| 7.5 to 7.99 | 0.92 |
| 8.0 to 8.49 | 1.0 |
| 8.5 to 8.99 | 1.1 |
| 9.0 to 9.49 | 1.2 |
| 9.5 to 9.99 | 1.3 |
| 10.0 to 10.49 | 1.42 |
| 10.5 to 10.99 | 1.54 |
| 11.0 to 11.49 | 1.68 |
| 11.5 to 11.99 | 1.83 |
| 12.0 to 12.49 | 1.99 |
| 12.5 to 12.99 | 2.17 |
| 13.0 or greater | 2.26 |

**Note:** See the comprehensive example in s. NR 279.42 c2d ccd.

**c3d** The provisions of s. NR 279.12 c3d apply to discharges of process wastewater pollutants attributable to ballast water by a point source subject to the provisions of this subcategory.

**c4d** The quantity and quality of pollutants or pollutant properties controlled by this subsection, attributable to once-through cooling water, are excluded from the discharge allowed by sub. c2d. Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg{l.

**c5d** The following effluent limitations constitute the quantity and quality of pollutants or pollutant properties controlled by this subsection and attributable to contaminated runoff, which may be discharged after the application of the best practicable control technology currently available by a point source subject to this subcategory.

cad If wastewater consists solely of contaminated runoff and is not commingled or treated with process wastewater, it may be discharged if it does not exceed 15 mg{l oil and grease and 110 mg{l total organic carbon cTOCd based upon an analysis of any single grab or composite sample.

cbd If contaminated runoff is commingled or treated with process wastewater, or if wastewater consisting solely of contaminated runoff which exceeds 15 mg{l oil and grease or 110 mg{l TOC is not commingled or treated with any other type of wastewater, the quantity of pollutants discharged may not exceed the quantity determined by multiplying the flow of contaminated runoff as determined by the department times the concentrations listed in the following table:

| Pollutant or pollutant property | BPT effluent limitations: Maximum for any 1 day | BPT effluent limitations: Average of daily values for 30 consecutive days |
|---|---|---|
| | Metric units ckilograms per cubic meter of flowd | |
| $BOD_5$ | 48.0 | 26.0 |
| TSS | 33.0 | 21.0 |
| COD[1] | 360.0 | 180.0 |
| Oil and grease | 15.0 | 8.0 |
| Phenolic compounds c4AAPd | 0.35 | 0.17 |
| Total chromium | 0.73 | 0.43 |
| Hexavalent chromium | 0.062 | 0.0028 |
| pH | c2d | c2d |
| | English units cpounds per 1,000 gallons of flowd | |
| $BOD_5$ | 0.4 | 0.22 |
| TSS | 0.28 | 0.18 |
| COD[1] | 3.0 | 1.5 |
| Oil and grease | 0.13 | 0.067 |
| Phenolic compounds c4AAPd | 0.0029 | 0.0014 |
| Total chromium | 0.006 | 0.0035 |
| Hexavalent chromium | 0.00052 | 0.00023 |
| pH | c2d | c2d |

[1] In any case in which the applicant can demonstrate that the chloride ion concentration in the effluent exceeds 1,000 mg{l c1,000 ppmd, the department may substitute TOC as a parameter in lieu of COD. A TOC effluent limitation shall be based on effluent data from the particular refinery which correlates TOC to $BOD_5$. If in the judgment of the department, 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 for $BOD_5$.
[2] Within the range 6.0 to 9.0.

**History:** Cr. Register, October, 1986, No. 370, eff. 11-1-86.

**NR 279.53 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable cBATd. c1d** Except as provided in 40 CFR 125.30 - 125.32, any existing point source subject to this subcategory shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable cBATd:

| Pollutant or pollutant property | BAT effluent limitations Maximum for any 1 day | Average of daily values for 30 consecutive days |
|---|---|---|
| | Metric units ckilograms per 1,000 $m^3$ of feedstockd | |
| COD[1] | 388.0 | 198.0 |
| Ammonia as N | 23.4 | 10.6 |
| Sulfide | 0.35 | 0.158 |
| | English units cpounds per 1,000 bbl of feedstockd | |
| COD[1] | 136.0 | 70.0 |
| Ammonia as N | 8.3 | 3.8 |
| Sulfide | 0.124 | 0.056 |

[1] See footnote following table in s. NR 279.13 c4d.

**c2d** The limits set forth in sub. c1d shall be multiplied by the following factors to calculate the maximum for any one day and maximum average of daily values for 30 consecutive days.

cad Size factor.

| 1000 bbl. of feedstock per stream day | Size factor |
|---|---|
| Less than 124.9 | 0.73 |
| 125.0 to 149.9 | 0.76 |
| 150.0 to 174.9 | 0.83 |
| 175.0 to 199.9 | 0.91 |
| 200.0 to 224.9 | 0.99 |
| 225.0 or greater | 1.04 |

cbd Process factor.

| Process configuration | Process factor |
|---|---|
| Less than 6.49 | 0.75 |
| 6.5 to 7.49 | 0.82 |
| 7.5 to 7.99 | 0.92 |
| 8.0 to 8.49 | 1.0 |
| 8.5 to 8.99 | 1.1 |
| 9.0 to 9.49 | 1.2 |
| 9.5 to 9.99 | 1.3 |
| 10.0 to 10.49 | 1.42 |
| 10.5 to 10.99 | 1.54 |
| 11.0 to 11.49 | 1.68 |
| 11.5 to 11.99 | 1.83 |
| 12.0 to 12.49 | 1.99 |
| 12.5 to 12.99 | 2.17 |
| 13.0 or greater | 2.26 |

**Note:** See the comprehensive example in s. NR 279.42 c2d ccd.

**c3d** cad In addition to the provisions contained above pertaining to COD, ammonia and sulfide any existing point source subject to this subcategory shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable cBATd. For each of the regulated pollutant parameters listed below, the effluent limitation for a given refinery is the sum of the products of each effluent limitation factor times the applicable process feedstock rate, calculated as provided in 40 CFR 122.45 cbd.

**Note:** Applicable production processes are presented in Appendix A, by process type. The process identification numbers presented in this Appendix A are for the convenience of the reader. They can be cross-referenced in the Development Document for Effluent Limitations Guidelines, New Source Performance Standards, and Pretreatment Standards for the Petroleum Refining Point Source Category cEPA 440{1-82{014d. Table III-7, pp. 49-54.

40 CFR 122.45cbd reads as follows: The calculation of any permit limitations, standards, or prohibitions which are based on production cor other measure of operationd shall be based not upon the designed production capacity but rather upon a reasonable measure of actual production of the facility, such as the production during the high month of the previous year, or the monthly average for the highest of the previous 5 years. For new sources or new dischargers, actual production shall be estimated using projected production. The time period of the measure of production shall correspond to the time period of the calculated permit limitations; for example, monthly production shall be used to calculate average monthly discharge limitations.

| Pollutant or pollutant property | BAT Effluent Limitations Factor Maximum for any 1 day | Average of daily values for 30 consecutive days |
|---|---|---|
| | Metric units ckilograms per 1,000 $m^3$ of feedstockd | |
| Phenolic compounds c4AAPd: | | |
| Crude | 0.037 | 0.009 |
| Cracking and coking | 0.419 | 0.102 |
| Asphalt | 0.226 | 0.055 |
| Lube | 1.055 | 0.257 |
| Reforming and alkylation | 0.377 | 0.092 |
| Total chromium: | | |
| Crude | 0.03 | 0.011 |
| Cracking and coking | 0.34 | 0.118 |
| Asphalt | 0.183 | 0.064 |
| Lube | 0.855 | 0.297 |
| Reforming and alkylation | 0.305 | 0.106 |
| Hexavalent chromium: | | |
| Crude | 0.0019 | 0.0009 |
| Cracking and coking | 0.0218 | 0.0098 |
| Asphalt | 0.0117 | 0.0053 |
| Lube | 0.0549 | 0.0248 |
| Reforming and alkylation | 0.0196 | 0.0088 |
| | English units cpounds per 1,000 bbl of feedstockd | |
| Phenolic compounds c4AAPd: | | |
| Crude | 0.013 | 0.003 |
| Cracking and coking | 0.147 | 0.036 |
| Asphalt | 0.079 | 0.019 |
| Lube | 0.369 | 0.09 |
| Reforming and alkylation | 0.132 | 0.032 |
| Total chromium: | | |
| Crude | 0.011 | 0.004 |
| Cracking and coking | 0.119 | 0.041 |
| Asphalt | 0.064 | 0.022 |
| Lube | 0.299 | 0.104 |
| Reforming and alkylation | 0.107 | 0.037 |
| Hexavalent chromium: | | |
| Crude | 0.0007 | 0.0003 |
| Cracking and coking | 0.0076 | 0.0034 |
| Asphalt | 0.0041 | 0.0019 |
| Lube | 0.0192 | 0.0087 |
| Reforming and alkylation | 0.0089 | 0.0031 |

**Note:** See the comprehensive example in s. NR 279.43 c3d cbd.

**c4d** The provisions of s. NR 279.13 c4d apply to discharges of process wastewater pollutants attributable to ballast water by a point source subject to the provisions of this subcategory.

**c5d** The quantity and quality of pollutants or pollutant properties controlled by this subsection, attributable to once-through cooling water, are excluded from the discharge allowed by sub. c2d. Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg{l.

**c6d** The following effluent limitations constitute the quantity and quality of pollutants or pollutant properties controlled by this subsection and attributable to contaminated runoff, which may be discharged after the application of the best available technology economically achievable by a point source subject to this subcategory.

cad If wastewater consists solely of contaminated runoff and is not commingled or treated with process wastewater, it may be discharged if it does not exceed 110 mg{l total organic carbon cTOCd based upon an analysis of any single grab or composite sample.

cbd If contaminated runoff is commingled or treated with process wastewater, or if wastewater consisting solely of contaminated runoff which exceeds 110 mg{l TOC is not commingled or treated with any other type of wastewater, the quantity of pollutants discharged may not exceed the quantity determined by multiplying the flow of contaminated runoff as determined by the department times the concentrations listed in the following table:

| Pollutant or pollutant property | BAT effluent limitations Maximum for any 1 day | Average of daily values for 30 consecutive days |
|---|---|---|
| | **Metric units ckilograms per 1,000 cubic meters of flow** | |
| Phenolic compounds c4AAPd | 0.35 | 0.17 |
| Total chromium | 0.6 | 0.21 |
| Hexavalent chromium | 0.062 | 0.028 |
| COD[1] | 360.0 | 180.0 |
| | **English units cpounds per 1,000 gallons of flowd** | |
| Phenolic compounds c4AAPd | .0029 | .0014 |
| Total chromium | .005 | .0018 |
| Hexavalent chromium | .00052 | .00023 |
| COD[1] | 3.0 | 1.5 |

[1] In any case in which the applicant can demonstrate that the chloride ion concentration in the effluent exceeds 1000 mg{l c1000 ppmd, the department may substitute TOC as a parameter in lieu of COD. A TOC effluent limitation shall be based on effluent data from the particular refinery which correlates TOC to $BOD_5$. If in the judgment of the department, 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 for $BOD_5$.

**History:** Cr. Register, October, 1986, No. 370, eff. 11-1-86.

**NR 279.54 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology cBCTd. c1d** Any existing point source subject to this subcategory shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology cBCTd:

| Pollutant or pollutant property | BCT Effluent Limitations Maximum for any 1 day | Average of daily values for 30 consecutive days |
|---|---|---|
| | **Metric units ckilograms per 1,000 $m^3$ of feedstockd** | |
| $BOD_5$ | 54.4 | 28.9 |
| TSS | 37.3 | 23.7 |
| Oil and grease | 17.1 | 9.1 |
| pH | c1d | c1d |
| | **English units cpounds per 1,000 bbl of feedstockd** | |
| $BOD_5$ | 19.2 | 10.2 |
| TSS | 13.2 | 8.4 |
| Oil and grease | 6.0 | 3.2 |
| pH | c1d | c1d |

[1] Within the range of 6.0 to 9.0.

**c2d** The limits set forth in sub. c1d shall be multiplied by the following factors to calculate the maximum for any one day and maximum average of daily values for 30 consecutive days.

cad Size factor.

| 1000 bbl. of feedstock per stream day | Size factor |
|---|---|
| Less than 124.9 | 0.73 |
| 125.0 to 149.9 | 0.76 |
| 150.0 to 174.9 | 0.83 |
| 175.0 to 199.9 | 0.91 |
| 200.0 to 224.9 | 0.99 |
| 225.0 or greater | 1.04 |

cbd Process factor.

| Process configuration | Process factor |
|---|---|
| Less than 6.49 | 0.75 |
| 6.5 to 7.49 | 0.82 |
| 7.5 to 7.99 | 0.92 |
| 8.0 to 8.49 | 1.0 |
| 8.5 to 8.99 | 1.1 |
| 9.0 to 9.49 | 1.2 |
| 9.5 to 9.99 | 1.3 |
| 10.0 to 10.49 | 1.42 |
| 10.5 to 10.99 | 1.54 |
| 11.0 to 11.49 | 1.68 |
| 11.5 to 11.99 | 1.83 |
| 12.0 to 12.49 | 1.99 |
| 12.5 to 12.99 | 2.17 |
| 13.0 or greater | 2.26 |

**Note:** See the comprehensive example in s. NR 279.42 c2d ccd.

**c3d** The provisions of s. NR 279.14 c3d apply to discharges of process wastewater pollutants attributable to ballast water by a point source subject to the provisions of this subcategory.

**c4d** The quantity and quality of pollutants or pollutant properties controlled by this subsection, attributable to once-through cooling water, are excluded from the discharge allowed by sub. c2d.

**c5d** The following effluent limitations constitute the quantity and quality of pollutants or pollutant properties controlled by this subsection and attributable to contaminated runoff, which may be discharged after the application of the best conventional pollutant control technology by a point source subject to this subcategory.

cad If wastewater consists solely of contaminated runoff and is not commingled or treated with process wastewater, it may be discharged if it does not exceed 15 mg{l oil and grease based upon an analysis of any single grab or composite sample.

cbd If contaminated runoff is commingled or treated with process wastewater, or if wastewater consisting solely of contaminated runoff which exceeds 15 mg{l oil and grease is not commingled or treated with any other type of wastewater, the quantity of pollutants discharged may not exceed the quantity determined by multiplying the flow of contaminated runoff as determined by the department times the concentrations listed in the following table:

| | BCT Effluent Limitations | |
|---|---|---|
| **Pollutant or pollutant property** | **Maximum for any 1 day** | **Average of daily values for 30 consecutive days** |
| | **Metric units ckilograms per 1,000 $m^3$ of flow** | |
| $BOD_5$ | 48.0 | 26.0 |
| TSS | 33.0 | 21.0 |
| Oil and grease | 15.0 | 8.0 |
| pH | c1d | c1d |
| | **English units cpounds per 1,000 gallons of flowd** | |
| $BOD_5$ | 0.4 | 0.22 |
| TSS | 0.28 | 0.18 |
| Oil and grease | 0.13 | 0.067 |
| pH | c1d | c1d |

[1] Within the range of 6.0 to 9.0.

**History:** Cr. Register, October, 1986, No. 370, eff. 11-1-86.

**NR 279.55 Pretreatment standards for existing sources cPSESd.** Except as provided in 40 CFR 403.7 and 403.13 any existing source subject to this subcategory which introduces pollutants into a publicly owned treatment works shall comply with 40 CFR Part 403 and achieve the following pretreatment standards for existing sources cPSESd. The following standards apply to the total refinery flow contribution to the POTW:

| Pollutant or pollutant property | Pretreatment standards for existing sources - maximum for any 1 day |
|---|---|
| | **Milligrams per liter cmg{ld** |
| Oil and grease | 100.0 |
| Ammonia | [1]100.0 |

[1] Where the discharge to the POTW consists solely of sour waters, the owner or operator has the option of complying with this limit or the daily maximum mass limitation for ammonia set forth in s. NR 279.53 c1d and c2d.

**History:** Cr. Register, October, 1986, No. 370, eff. 11-1-86.

**NR 279.56 Standards of performance for new sources cNSPSd. c1d** Any new source subject to this subcategory shall achieve the following new source performance standards cNSPSd:

| Pollutant or pollutant property | NSPS effluent limitations: Maximum for any 1 day | Average of daily values for 30 consecutive days |
|---|---|---|
| | Metric units ckilograms per 1,000 $m^3$ of feedstockd | |
| $BOD_5$ | 41.6 | 22.1 |
| TSS | 28.1 | 17.9 |
| COD[1] | 295.0 | 152.0 |
| Oil and grease | 12.6 | 6.7 |
| Phenolic compounds | 0.3 | 0.14 |
| Ammonia as N | 23.4 | 10.7 |
| Sulfide | 0.26 | 0.12 |
| Total chromium | 0.64 | 0.37 |
| Hexavalent chromium | 0.052 | 0.024 |
| pH | c2d | c2d |
| | English units cpounds per 1,000 bbl of feedstockd | |
| $BOD_5$ | 14.7 | 7.8 |
| TSS | 9.9 | 6.3 |
| COD[1] | 104.0 | 54.0 |
| Oil and grease | 4.5 | 2.4 |
| Phenolic compounds | 0.105 | 0.051 |
| Ammonia as N | 8.3 | 3.8 |
| Sulfide | 0.093 | 0.042 |
| Total chromium | 0.22 | 0.13 |
| Hexavalent chromium | 0.019 | 0.0084 |
| pH | c2d | c2d |

[1]See footnote following table in s. NR 279.13 c4d.
[2]Within the range of 6.0 to 9.0.

**c2d** The limits set forth in sub. c1d shall be multiplied by the following factors to calculate the maximum for any one day and maximum average of daily values for 30 consecutive days.

cad Size factor.

| 1000 bbl. of feedstock per stream day | Size factor |
|---|---|
| Less than 124.9 | 0.73 |
| 125.0 to 149.9 | 0.76 |
| 150.0 to 174.9 | 0.83 |
| 175.0 to 199.9 | 0.91 |
| 200.0 to 224.9 | 0.99 |
| 225.0 or greater | 1.04 |

cbd Process factor.

| Process configuration | Process factor |
|---|---|
| Less than 6.49 | 0.75 |
| 6.5 to 7.49 | 0.82 |
| 7.5 to 7.99 | 0.92 |
| 8.0 to 8.49 | 1.0 |
| 8.5 to 8.99 | 1.1 |
| 9.0 to 9.49 | 1.2 |
| 9.5 to 9.99 | 1.3 |
| 10.0 to 10.49 | 1.42 |
| 10.5 to 10.99 | 1.54 |
| 11.0 to 11.49 | 1.68 |
| 11.5 to 11.99 | 1.83 |
| 12.0 to 12.49 | 1.99 |
| 12.5 to 12.99 | 2.17 |
| 13.0 or greater | 2.26 |

**Note:** See the comprehensive example in s. NR 279.42 c2d ccd.

**c3d** The provisions of s. NR 279.16 c3d apply to discharges of process wastewater pollutants attributable to ballast water by a point source subject to the provisions of this subcategory.

**c4d** The quantity and quality of pollutants or pollutant properties controlled by this subsection, attributable to once-through cooling water, are excluded from the discharge allowed by sub. c2d. Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg{l.

**History:** Cr. Register, October, 1986, No. 370, eff. 11-1-86.

**NR 279.57 Pretreatment standards for new sources cPSNSd.** Except as provided in 40 CFR 403.7 any existing [new] source subject to this subcategory which introduces pollutants into a publicly owned treatment works shall comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources cPSNSd.

**c1d** The following standards apply to the total refinery flow contribution to the POTW:

| Pollutant or pollutant property | Pretreatment standards for new sources - maximum for any 1 day |
|---|---|
| | Milligrams per liter cmg{ld |
| Oil and grease | 100.0 |
| Ammonia | [1]100.0 |

[1] Where the discharge to the POTW consists solely of sour waters, the owner or operator has the option of complying with this limit or the daily maximum mass limitation for ammonia set forth in s. NR 279.53 c1d and c2d.

**c2d** The following standard is applied to the cooling tower discharge part of the total refinery flow to the POTW by multiplying:

cad The standards;

cbd By the total refinery flow to the POTW; and

ccd By the ratio of the cooling tower discharge flow to the total refinery flow.

| Pollutant or pollutant property | Pretreatment standards for new sources - maximum for any 1 day |
|---|---|
| | Milligrams per liter cmg{ld |
| Total chromium | 1.0 |

**History:** Cr. Register, October, 1986, No. 370, eff. 11-1-86.

**NR 279.60 Cross-reference.** The federal citations in this chapter correspond to provisions of the Wisconsin administrative code and Wisconsin statutes. The federal citations may be cross-referenced in the following table:

| CODE OF FEDERAL REGULATIONS | CORRESPONDING STATE CODE SECTIONS |
|---|---|
| 40 CFR Part 419 | ch. NR 279 |
| 40 CFR 125.30-125.32 | NR 211.14, s. 283.13 c3d, Stats. |
| 40 CFR Part 401 | chs. NR 205, 215, 219 |
| 40 CFR Part 403 | ch. NR 211 |
| 40 CFR 403.7 | NR 211.13 |
| 40 CFR 403.13 | NR 211.14 |

**History:** Cr. Register, October, 1986, No. 370, eff. 11-1-86.

## Appendix A

Processes Included in the Determination of BAT Effluent Limitations for Total Chromium, Hexavalent Chromium, and Phenolic Compounds c4AAPd

**Crude Processes:**

1. Atmospheric Crude Distillation
2. Crude Desalting
3. Vacuum Crude Distillation

**Cracking and Coking Processes:**

4. Visbreaking
5. Thermal Cracking
6. Fluid Catalytic Cracking
7. Moving Bed Catalytic Cracking
10. Hydrocracking
15. Delayed Coking
16. Fluid Coking
54. Hydrotreating

**Asphalt Processes:**

18. Asphalt Production
32. 200°F Softening Point Unfluxed Asphalt
43. Asphalt Oxidizing
89. Asphalt Emulsifying

**Lube Processes:**

21. Hydrofining, Hydrofinishing, Lube Hydrofining
22. White Oil Manufacture
23. Propane Dewaxing, Propane Deasphalting, Propane Fractioning, Propane Deresining
24. Duo Sol, Solvent Treating, Solvent Extraction, Duotreating, Solvent Dewaxing, Solvent Deasphalting
25. Lube Vac Twr, Oil Fractionation, Batch Still cNaphtha Stripd, Bright Stock Treating
26. Centrifuge & Chilling
27. MEK Dewaxing, Ketone Dewaxing, MEK-Toluene Dewaxing
28. Deoiling cwaxd
29. Naphthenic Lubes Production
30. $SO_2$ Extraction
34. Wax Pressing