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Note: Chapter NR 279 as it existed on October 31, 1986 was repealed and a new chapter NR 279 was created effective November 1, 1986.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

(1) Topping process;

(2) Cracking process;

(3) Petrochemical operation;

(4) Lube process; and

(5) Integrated process.

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

NR 279.03 General definitions. For the purpose of this chapter: (1) Except as provided below, the general definitions, abbreviations, and methods of analysis set forth in 40 C.F.R. Part 401 shall apply to this chapter.

(2) "Ballast" means the flow of waters, from a ship, that is treated along with refinery wastewaters in the main treatment system.

(3) "Contaminated runoff" means runoff which comes into contact with any raw material, intermediate product, finished product, by-product or waste product located on petroleum refinery property.

(4) "Existing source" means any source that is not a new source.

(5) "Feedstock" means the crude oil and natural gas liquids fed to the topping units.

(6) "New source," 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.

(7) "New source," as defined for BPT, BAT, BCT, and NSPS, means any point source the construction of which commenced after December 1, 1982.

(8) "Once-through cooling water" 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.

(9) "Runoff" means the flow of storm water resulting from precipitation coming into contact with petroleum refinery property.

(10) The following abbreviation shall be used:

"Mgal" 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 (coking, vis-breaking, etc.) 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 (BPT). (1) Except as provided in 40 C.F.R. ss. 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):

	BPT effluent limitations	
Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 m^3 of feedstock)	
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	(2)	(2)

	English units (pounds per 1,000 bbl of feedstock)	
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	(2)	(2)

[1] See footnote following table in s. NR 279.13 (4).

[2] Within the range of 6.0 to 9.0.

(2) The limits set forth in sub. (1) shall be multiplied by the following factors to calcuate the maximum for any one day and maximum average of daily values for 30 consecutive days.

(a) 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

(b) 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 (2) (c).

(3) 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. (2). The allocation allowed for ballast water flow, as kg/cu m (lb/M gal), 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 (kilograms per cubic meter of flow)	
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	(2)	(2)
	English units (pounds per 1,000 gal of flow)	
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	(2)	(2)

[1] See footnote following table in s. NR 279.13 (4).

[2] Within the range of 6.0 to 9.0.

(4) 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. (2). Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg/l.

(5) 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.

(a) 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 (TOC) based upon an analysis of any single grab or composite sample.

(b) 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 (kilograms 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 (4AAP)	0.35	0.17
Total chromium	0.73	0.43
Hexavalent chromium	0.062	0.028
pH	(2)	(2)
	English units (pounds per 1,000 gal of flow)	
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 (4AAP)	0.0029	0.0014
Total chromium	0.006	0.0035
Hexavalen chromium	0.00052	0.00023
pH	(2)	(2)

[1] In any case in which the applicant can demonstrate that the chloride ion concentration in the effluent exceeds 1,000 mg/l (1,000 ppm), the 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] 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 (BAT). (1) Except as provided in 40 C.F.R. ss. 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):

	BPT effluent limitations	
Pollutant or pollutant property	**Maximum for any 1 day**	**Average of daily values for 30 consecutive days**
	Metric units (kilograms per 1,000 m^3 of feedstock)	
COD[1]	117	60.3
Ammonia as N	2.81	1.27
Sulfide	0.149	0.068
	English units (pounds per 1,000 bbl of feedstock)	
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 (4).

(2) The limits set forth in sub. (1) 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.

(a) 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

(b) 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 279.43 (2) (c).

(3) (a) In addition to the provisions contained in sub. (1) 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 (BAT). 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 C.F.R. s. 122.45(b).

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 (EPA 440/1-82/014), Table III-7, pp. 49-54.

40 C.F.R. s. 122.45 (b) reads as follows: The calculation of any permit limitations, standards, or prohibitions which are based on production (or other measure of operation) 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 (kilograms per 1,000 m^3 of feedstock)	
Phenolic compounds (4AAP):		
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 (pounds per 1,000 bbl of feedstock)	
Phenolic compounds (4AAP):		
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 (3) (b).

(4) 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. (2). The allocation allowed for ballast water flow, as kg/cu m (lb/M gal), 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 (kilograms per cubic meter of flow)	
COD[1]	0.47	0.24
	English units (pounds per 1,000 gal. of flow)	
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 (1,000 ppm), 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.

(5) 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. (2). Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg/l.

(6) 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.

(a) 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 (TOC) based upon an analysis of any single grab or composite sample.

(b) 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 (kilograms per 1,000 cubic meters of flow)	
Phenolic compounds (4AAP)	0.35	0.17
Total chromium	0.6	0.21
Hexavalent chromium	0.062	0.028
COD[1]	360.0	180.0
	English units (pounds per 1,000 gallons of flow)	
Phenolic compounds (4AAP)	.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 (1000 ppm), 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 (BCT). (1) 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 (BCT):

Pollutant or pollutant property	BCT effluent limitations: Maximum for any 1 day	BCT effluent limitations: Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 m^3 of feedstock)	
BOD_5	22.7	12.0
TSS	15.8	10.1
Oil and grease	6.9	3.7
pH	(1)	(1)
	English units (pounds per 1,000 bbl of feedstock)	
BOD_5	8.0	4.25
TSS	5.6	3.6
Oil and grease	2.5	1.3
pH	(1)	(1)

(1) Within the range 6.0 to 9.0.

(2) The limits set forth in sub. (1) 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.

(a) 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

(b) 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 (2) (c).

(3) 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. (2). The allocation allowed for ballast water flow, as kg/cu m (lb/1000 gal), 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 (kilograms per cubic meter of flow)	
BOD_5	0.048	0.026
TSS	0.033	0.021
Oil and grease	0.015	0.008
pH	(1)	(1)
	English units (pounds per 1,000 gallons of flow)	
BOD_5	0.4	0.21
TSS	0.26	0.17
Oil and grease	0.126	0.067
pH	(1)	(1)

[1] Within the range 6.0 to 9.0.

(4) 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. (2).

(5) 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.

(a) 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.

(b) 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 (kilograms per 1,000 cubic meters of flow)	
BOD_5	48.0	26.0
TSS	33.0	21.0
Oil and grease	15.0	8.0
pH	(1)	(1)
	English units (pounds per 1,000 gallons of flow)	
BOD_5	0.4	0.22
TSS	0.28	0.18
Oil and grease	0.13	0.067
pH	(1)	(1)

[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 (PSES). Except as provided in 40 C.F.R. ss. 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 C.F.R. Part 403 and achieve the following pretreatment standards for existing sources (PSES). 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 (mg/l)
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 (1) and (2).

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

NR 279.16 Standards of performance for new sources (NSPS). (1) Any new source subject to this subcategory shall achieve the following new source performance standards (NSPS):

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 (kilograms per cubic meter of flow)	
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	(2)	(2)
	English units (pounds per 1,000 gallons of flow)	
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	(2)	(2)

[1] See footnote following table in s. NR 279.13 (4).

[2] Within the range of 6.0 to 9.0

(2) The limits set forth in sub. (1) 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.

(a) 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

(b) 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 (2) (c).

(3) 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. (2). The allocation allowed for ballast water flow, as kg/cu m (lb/Mgal), 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 (kilograms per cubic meter of flow)	
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	(2)	(2)
	English units (pounds per 1,000 gal of flow)	
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	(2)	(2)

[1] See footnote following table in s. NR 279.13 (4).

[2] Within the range of 6.0 to 9.0.

(4) 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. (2). Once-through cool-

ing 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 (PSNS). Except as provided in 40 C.F.R. s. 403.7, any new source subject to this subcategory which introduces pollutants into a publicly owned treatment works shall comply with 40 C.F.R. Part 403 and achieve the following pretreatment standards for new sources (PSNS).

(1) 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 (mg/l)
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 (1) and (2).

(2) The following standard is applied to the cooling tower discharge part of the total refinery flow to the POTW by multiplying:

(a) The standard;

(b) By the total refinery flow to the POTW; and

(c) 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 (mg/l)
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 (BPT). (1) Except as provided in 40 C.F.R. ss. 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:

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 (kilograms per 1,000 m^3 of feedstock)	
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	(2)	(2)
	English units (pounds per 1,000 bbl of feedstock)	
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	(2)	(2)

[1] See footnote following table in s. NR 279.13 (4).

[2] Within the range of 6.0 to 9.0.

(2) The limits set forth in sub. (1) 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.

(a) 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

(b) 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 (2) (c).

(3) The provisions of s. NR 279.12 (3) apply to discharges of process wastewater pollutants attributable to ballast water by a point source subject to the provisions of this subcategory.

(4) 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. (2). Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg/l.

(5) 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.

(a) 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 (TOC) based upon an analysis of any single grab or composite sample.

(b) 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:

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 (kilograms 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 (4AAP)	0.35	0.17
Total chromium	0.73	0.43
Hexavalent chromium	0.062	0.028
pH	(2)	(2)
	English units (pounds per 1,000 gallons of flow)	
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 (4AAP)	0.0029	0.0014
Total chromium	0.006	0.0035
Hexavalent chromium	0.00052	0.00023
pH	(2)	(2)

[1] In any case in which the applicant can demonstrate that the chloride ion concentration in the effluent exceeds 1,000 mg/l (1,000 ppm), the 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 (BAT). (a) Except as provided in 40 C.F.R. ss. 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:

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 (kilograms 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 (pounds per 1,000 bbl of feedstock)	
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 (4).

(2) The limits set forth in sub. (1) 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:

(a) 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

(b) 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 (2) (c).

(3) (a) 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 (BAT). 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 C.F.R. 122.45 (b).

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 (EPA 440/1-82/014). Table III-7, pp. 49-54.

40 C.F.R. s. 122.45 (b) reads as follows: The calculation of any permit limitations, standards, or prohibitions which are based on production (or other measure of operation) 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 (kilograms per 1,000 m^3 of feedstock)	
Phenolic compounds (4AAP):		
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 (pounds per 1,000 bbl of feedstock)	
Phenolic compounds (4AAP):		
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 (3) (b).

(4) The provisions of s. NR 279.13 (4) apply to discharges of process wastewater pollutants attibutable to ballast water by a point source subject to the provisions of this subcategory.

(5) 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. (2). Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg/l.

(6) 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.

(a) 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 (TOC) based upon an analysis of any single grab or composite sample.

(b) 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 (kilograms per 1,000 cubic meters of flow)	
Phenolic compounds (4AAP)	0.35	0.17
Total chromium	0.6	0.21
Hexavalent chromium	0.062	0.028
COD[1]	360.0	180.0
	English units (pounds per 1,000 gallons of flow)	
Phenolic compounds (4AAP)	.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 (1000 ppm), 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 (BCT). (1) 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 (BCT):

	BCT effluent limitations	
Pollutant or pollutant property	**Maximum for any 1 day**	**Average of daily values for 30 consecutive days**
	Metric units (kilograms per 1,000 m^3 of feedstock)	
BOD_5	28.2	15.6
TSS	19.5	12.6
Oil and grease	8.4	4.5
pH	(1)	(1)
	English units (pounds per 1,000 bbl feedstock)	
BOD_5	9.9	5.5
TSS	6.9	4.4
Oil and grease	3.0	1.6
pH	(1)	(1)

[1] Within the range of 6.0 to 9.0

(2) The limits set forth in sub. (1) 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.

(a) 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

(b) 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 (2) (c).

(3) The provisions of s. NR 279.14 (3) apply to discharges of process wastewater pollutants attributable to ballast water by a point source subject to the provisions of this subcategory.

(4) 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. (2).

(5) 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.

(a) 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.

(b) 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:

Pollutant or pollutant property	BCT effluent limitations: Maximum for any 1 day	BCT effluent limitations: Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 cubic meters of flow)	
BOD_5	48.0	26.0
TSS	33.0	21.0
Oil and grease	15.0	8.0
pH	(1)	(1)
	English units (pounds per 1,000 gallons of flow)	
BOD_5	0.4	0.22
TSS	0.28	0.18
Oil and grease	0.13	0.067
pH	(1)	(1)

[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 (PSES). Except as provided in 40 C.F.R. ss. 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 C.F.R. Part 403 and achieve the following pretreatment standards for existing sources (PSES). 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 (mg/l)
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 (1) and (2).

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

NR 279.26 Standards of performance for new sources (NSPS). (1) Any new source subject to this subcategory shall achieve the following new source performance standards (NSPS):

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 (kilograms per 1,000 m^3 of feedstock)	
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	(2)	(2)

	English units (pounds per 1,000 bbl of feedstock)	
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	(2)	(2)

[1] See footnote following table in s. NR 279.13 (4).

[2] Within the range of 6.0 to 9.0.

(2) The limits set forth in sub. (1) 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.

(a) 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

(b) 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 (2) (c).

(3) The provisions of s. NR 279.16 (3) apply to discharges of process wastewater pollutants attributable to ballast water by a point source subject to the provisions of this subcategory.

(4) 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. (2). Once-through cool-

ing 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 (PSNS). Except as provided in 40 C.F.R. s. 403.7, any new source subject to this subcategory which introduces pollutants into a publicly owned treatment works shall comply with 40 C.F.R. Part 403 and achieve the following pretreatment standards for new sources (PSNS):

(1) 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 (mg/l)
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 (1) and (2).

(2) The following standard is applied to the cooling tower discharge part of the total refinery flow to the POTW by multiplying:

(a) The standard;

(b) By the total refinery flow to the POTW; and

(c) 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 (mg/l)
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: "Petrochemical operations" means the production of second-generation petrochemicals (i.e., alcohols, ketones, cumene, styrene, etc.) or first generation petrochemicals and isomerization products (i.e., BTX, olefins, cyclohexane, etc.) when 15% or more of refinery production is as first-generation petrochemicals and isomerization products.

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 (BPT). (1) Except as provided in 40 C.F.R. ss. 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):

	BPT effluent limitations	
Pollutant or pollutant property	**Maximum for any 1 day**	**Average of daily values for 30 consecutive days**
	Metric units (kilograms per 1,000 m^3 of feedstock)	
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	(2)	(2)
	English units (pounds per 1,000 bbl of feedstock)	
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	(2)	(2)

[1] See footnote following table in s. NR 279.13 (4).

[2] Within the range of 6.0 to 9.0

(2) The limits set forth in sub. (1) 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.

(a) 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

(b) 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 (2) (c).

(3) The provisions of s. NR 279.12 (3) apply to discharges of process wastewater pollutants attributable to ballast water by a point source subject to the provisions of this subchapter.

(4) 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. (2). Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg/l.

(5) 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.

(a) 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 (TOC) based upon an analysis of any single grab or composite sample.

(b) 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 (kilograms 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 (4AAP)	0.35	0.17
Total chromium	0.73	0.43
Hexavalent chromium	0.062	0.028
pH	(2)	(2)

	English units (pounds per 1,000 gallons of flow)	
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 (4AAP)	0.0029	0.0014
Total chromium	0.0060	0.0035
Hexavalent chromium	0.00052	0.00023
pH	(2)	(2)

[1] In any case in which the applicant can demonstrate that the chloride ion concentration in the effluent exceeds 1,000 mg/l (1,000 ppm), the 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 (BAT). (1) Except as provided in 40 C.F.R. ss. 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):

	BAT effluent limitations	
Pollutant or pollutant property	**Maximum for any 1 day**	**Average of daily values for 30 consecutive days**
	Metric units (kilograms per 1,000 m^3 of feedstock)	
COD[1]	210.0	109.0
Ammonia as N	23.4	10.6
Sulfide	0.22	0.099
	English units (pounds per 1,000 bbl of feedstock)	
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 (4).

(2) The limits set forth in sub. (1) 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.

(a) 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

(b) 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 (2) (c).

(3) (a) 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 (BAT). 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 C.F.R. 122.45 (b).

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 (EPA 440/1-82/014). Table III-7, pp. 49-54.

40 C.F.R. s. 122.45 (b) reads as follows: The calculation of any permit limitations, standards, or prohibitions which are based on production (or other measure of operation) 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 prevoius 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 (kilograms per 1,000 m^3 of feedstock)	
Phenolic compounds (4AAP):		
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 (pounds per 1,000 bbl of feedstock)	
Phenolic compounds (4AAP):		
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 (3) (b).

(4) The provisions of s. NR 279.13 (4) apply to discharges of process wastewater pollutants attributable to ballast water by a point source subject to the provisions of this subcategory.

(5) 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. (2). Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg/l.

(6) 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.

(a) 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 (TOC) based upon an analysis of any single grab or composite sample.

(b) 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 (kilograms per 1,000 cubic meters of flow)	
Phenolic compounds (4AAP)	0.35	0.17
Total chromium	0.6	0.21
Hexavalent chromium	0.062	0.028
COD[1]	360.0	180.0
	English units (pounds per 1,000 gallons of flow)	
Phenolic compounds (4AAP)	.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 (1000 ppm), 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 (BCT). (1) 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 (BCT):

Pollutant or pollutant property	BCT effluent limitations: Maximum for any 1 day	BCT effluent limitations: Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 m^3 of feedstock)	
BOD_5	34.6	18.4
TSS	23.4	14.8
Oil and grease	11.1	5.9
pH	(1)	(1)
	English units (pounds per 1,000 bbl of feedstock)	
BOD_5	12.1	6.5
TSS	8.3	5.25
Oil and grease	3.9	2.1
pH	(1)	(1)

[1] Within the range of 6.0 to 9.0.

(2) The limits set forth in sub. (1) 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.

(a) 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

(b) 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 (2) (c).

(3) The provisions of s. NR 279.14 (3) apply to discharges of process wastewater pollutants attributable to ballast water by a point source subject to the provisions of this subcategory.

(4) 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. (2).

(5) 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.

(a) 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.

(b) 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.

Pollutant or pollutant property	BCT effluent limitations: Maximum for any 1 day	BCT effluent limitations: Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 cubic meters of flow)	
BOD_5	48.0	26.0
TSS	33.0	21.0
Oil and grease	15.0	8.0
pH	(1)	(1)
	English units (pounds per 1,000 gallons of flow)	
BOD_5	0.4	0.22
TSS	0.28	0.18
Oil and grease	0.13	0.067
pH	(1)	(1)

[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 (PSES). Except as provided in 40 C.F.R. ss. 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 C.F.R. Part 403 and achieve the following pretreatment standards for existing sources (PSES). 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 (mg/l)
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 (1) and (2).

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

NR 279.36 Standards of performance for new sources (NSPS). (1) Any new source subject to this subcategory shall achieve the following new source performance standards (NSPS):

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 (kilograms per 1,000 m^3 of feedstock)	
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	(2)	(2)

	English units (pounds per 1,000 bbl of feedstock)	
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	(2)	(2)

[1] See footnote following table in s. NR 279.13 (4).

[2] Within the range of 6.0 to 9.0.

(2) The limits set forth in sub. (1) 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.

(a) 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

(b) 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 (2) (c).

(3) The provisions of s. NR 279.16 (3) apply to discharges of process wastewater pollutants attributable to ballast water by a point source subject to the provisions of this subcategory.

(4) 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. (2). Once-through cool-

ing 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 (PSNS). Except as provided in 40 C.F.R. s. 403.7, any new source subject to this subcategory which introduces pollutants into a publicly owned treatment works shall comply with 40 C.F.R. Part 403 and achieve the following pretreatment standards for new sources (PSNS).

(1) 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 (mg/l)
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 (1) and (2).

(2) The following standard is applied to the cooling tower discharge part of the total refinery flow to the POTW by multiplying:

(a) The standard;

(b) By the total refinery flow to the POTW; and

(c) 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 (mg/l)
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 (BPT). (1) Except as provided in 40 C.F.R. ss. 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):

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 (kilograms per 1,000 m^3 of feedstock)	
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	(2)	(2)
	English units (pounds per 1,000 bbl of feedstock)	
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	(2)	(2)

[1] See footnote following table in s. NR 279.13 (4).

[2] Within the range of 6.0 to 9.0.

(2) The limits set forth in sub. (1) 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.

(a) 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

(b) 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

(c) 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 Vacuum, crude distillation Desalting	1
Cracking and coking	Fluid cat. cracking Visbreaking Thermal cracking Moving bed cat. cracking Hydrocracking Fluid coking Delayed coking	6
Lube	Further defined in the development document	13
Asphalt	Asphalt production Asphalt oxidation Asphalt emulsifying	12

Process	Capacity (1,000 bbl per stream day)	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	×1	=2.48

Cracking:				
FCC	41.0	0.328		
Hydro-cracking	20.0	0.16		
Total		0.488	× 6	= 2.93
Lubes	5.3	0.042		
	4.0	0.032		
	4.9	0.039		
Total		0.113	× 13	= 1.47
Asphalt	4.0	0.032	× 12	= 0.88
Refinery process configuration				= 7.26

Notes: See table s. NR 279.42 (2) (b) for process factor. Process factor = 0.88.

See Table s. NR 279.42 (2) (a) 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 (1) by both the process factor and size factor. BOD_5 limit (maximum for any 1 day) = 17.9 × 0.88 × 0.97 = 15.3 lb. per 1,000 bbl of feedstock.

(3) The provisions of s. NR 279.12 (3) apply to discharges of process wastewater pollutants attributable to ballast water by a point source subject to the provisions of this subcategory.

(4) 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. (2). Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg/l.

(5) 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.

(a) 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 (TOC) based upon an analysis of any single grab or composite sample.

(b) 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 (kilograms 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 (4AAP)	0.35	0.17
Total chromium	0.73	0.43
Hexavalent chromium	0.062	0.028
pH	(2)	(2)
	English units (pounds per 1,000 gallons of flow)	
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 (4AAP)	0.0029	0.0014
Total chromium	0.006	0.0035
Hexavalent chromium	0.00052	0.00023
pH	(2)	(2)

[1] In any case in which the applicant can demonstrate that the chloride ion concentration in the effluent exceeds 1,000 mg/l (1,000 ppm), the 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 279.43 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT). (1) Except as provided in 40 C.F.R. ss. 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):

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 (kilograms per 1,000 m^3 of feedstock)	
COD[1]	360.0	187.0
Ammonia as N	23.4	10.6
Sulfide	0.33	0.15
	English units (pounds per 1,000 bbl of feedstock)	
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 (4).

(2) The limits set forth in sub. (1) 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.

(a) 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

(b) 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 (2) (c).

(3) (a) 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 (BAT). 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 C.F.R. s. 122.45 (b).

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 Performance Standards, and Pretreatment Standards for the Petroleum Refining Point Source Category (EPA 440/1-82/014). Table III-7, pp. 49-54.

40 C.F.R. s. 122.45(b) reads as follows: The calculation of any permit limitations, standards, or prohibitions which are based on production (or other measure of operation) 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 limitation factor: Maximum for any 1 day	BAT effluent limitation factor: Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 m^3 of feedstock)	
Phenolic compounds (4AAP):		
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
	English units (pounds per 1,000 bbl of feedstock)	
Phenolic compounds (4AAP):		
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

(b) 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 (4AAP) effluent limitation (30 day average) 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. Atmosopheric crude distillation	100
2. Crude desalting	50
3. Vacuum crude distillation	75
Total crude processes (C)	225
6. Fluid catalytic cracking	25
10. Hydrocracking	20
Total cracking and coking processes (K)	45
18. Asphalt production: Total asphalt processes (A)	5
21. Hydrofining: Total lube processes (L)	3
8. Catalytic reforming: Total reforming and alkylation processes (R)	10

Note: -30 = day average phenolic compounds (4AAP) discharge, lb/day (0.003)(225) + (0.036)(45) + (0.019) (5)+ (0.09)(3) + (0.032)(10) + 2.98 lb/day.

(4) The provisions of s. NR 279.13(4) apply to discharges of process wastewater pollutants attributable to ballast water by a point source subject to the provisions of this subcategory.

(5) 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. (2). Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg/l.

(6) 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.

(a) 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 (TOC) based upon an analysis of any single grab or composite sample.

(b) 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 (kilograms per 1,000 cubic meters of flow)	
Phenolic compounds (4AAP)	0.35	0.17
Total chromium	0.6	0.21
Hexavalent chromium	0.062	0.028
COD[1]	360.0	180.0

	English units (pounds per 1,000 gallons of flow)	
Phenolic compounds (4AAP)	.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 (1000 ppm), 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 (BCT). (1) 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 (BCT):

	BCT effluent limitations	
Pollutant or pollutant property	**Maximum for any 1 day**	**Average of daily values for 30 consecutive days**
	Metric units (kilograms per 1,000 m^3 of feedstock)	
BOD_5	50.6	25.8
TSS	35.6	22.7
Oil and grease	16.2	8.5
pH	(1)	(1)
	English units (pounds per 1,000 bbl of feedstock)	
BOD_5	17.9	9.1
TSS	12.5	8.0
Oil and grease	5.7	3.0
pH	(1)	(1)

[1] Within the range of 6.0 to 9.0.

(2) The limits set forth in sub. (1) 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.

(a) 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

(b) 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

(3) The provisions of s. NR 279.14(3) apply to discharges of process wastewater pollutants attributable to ballast water by a point source subject to the provisions of this subcategory.

(4) 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. (2).

(5) 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.

(a) 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.

(b) 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:

	BCT effluent limitations	
Pollutant or pollutant property	**Maximum for any 1 day**	**Average of daily values for 30 consecutive days**
	Metric units (kilograms per 1,000 cubic meters of flow)	
BOD_5	48.0	26.0
TSS	33.0	21.0
Oil and grease	15.0	8.0
pH	(1)	(1)

	English units (pounds per 1,000 gallons of flow)	
BOD_5	0.4	0.22
TSS	0.28	0.18
Oil and grease	0.13	0.067
pH	(1)	(1)

[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 (PSES). Except as provided in 40 C.F.R. ss. 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 C.F.R. Part 403 and achieve the following pretreatment standards for existing sources (PSES). 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 (mg/l)
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 (1) and (2).

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

NR 279.46 Standards of performance for new sources (NSPS). (1) Any new source subject to this subcategory shall achieve the following new source performance standards (NSPS):

	NSPS effluent limitations	
Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 m^3 of feedstock)	
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	(2)	(2)
	English units (pounds per 1,000 bbl of feedstock)	
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	(2)	(2)

[1] See footnote following table in s. NR 279.13 (4).

[2] Within the range of 6.0 to 9.0.

(2) The limits set forth in sub. (1) 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.

(a) 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

(b) 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 (2) (c).

(3) The provisions of s. NR 279.16(3) apply to discharges of process wastewater pollutants attributable to ballast water by a point source subject to the provisions of this subcategory.

(4) 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. (2). 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 (PSNS). Except as provided in 40 C.F.R. s. 403.7, any new source subject to this subcategory which introduces pollutants into a publicly owned treatment works shall comply with 40 C.F.R. Part 403 and achieve the following pretreatment standards for new sources (PSNS).

(1) 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 (mg/l)
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 (1) and (2).

(2) The following standard is applied to the cooling tower discharge part of the total refinery flow to the POTW by multiplying:

(a) The standard;

(b) By the total refinery flow to the POTW; and

(c) By the ratio of the cooling tower discharge flow to the total refinery flow.

Pollutant or pollutant property	Pretreatment standards for existing sources — maximum for any 1 day
	Milligrams per liter (mg/l)
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 (BPT). (1) Except as provided in 40 C.F.R. ss. 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):

	BPT effluent limitations	
Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 m^3 of feedstock)	
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	(2)	(2)

	English units (pounds per 1,000 bbl of feedstock)	
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	(2)	(2)

[1] See footnote following table in s. NR 279.13 (4).

[2] Within the range of 6.0 to 9.0.

(2) The limits set forth in sub. (1) 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.

(a) 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

(b) 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 (2) (c).

(3) The provisions of s. NR 279.12 (3) apply to discharges of process wastewater pollutants attributable to ballast water by a point source subject to the provisions of this subcategory.

(4) 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. (2). Once-through cool-

ing water may be discharged with a total organic carbon concentration not to exceed 5 mg/l.

(5) 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.

(a) 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 (TOC) based upon an analysis of any single grab or composite sample.

(b) If contaminated runoff is commingled or treated with process wastewater, or if wastewater consists 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 (kilograms per cubic meter 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 (4AAP)	0.35	0.17
Total chromium	0.73	0.43
Hexavalent chromium	0.062	0.0028
pH	(2)	(2)
	English units (pounds per 1,000 gallons of flow)	
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 (4AAP)	0.0029	0.0014
Total chromium	0.006	0.0035
Hexavalent chromium	0.00052	0.00023
pH	(2)	(2)

[1] In any case in which the applicant can demonstrate that the chloride ion concentration in the effluent exceeds 1,000 mg/l (1,000 ppm), the 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 279.53 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT). (1) Except as provided in 40 C.F.R. ss. 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):

	BAT effluent limitations	
Pollutant or pollutant property	**Maximum for any 1 day**	**Average of daily values for 30 consecutive days**
	Metric units (kilograms per 1,000 m^3 of feedstock)	
COD[1]	388.0	198.0
Ammonia as N	23.4	10.6
Sulfide	0.35	0.158
	English units (pounds per 1,000 bbl of feedstock)	
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 (4).

(2) The limits set forth in sub. (1) 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.

(a) 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

(b) 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 (2) (c).

(3) (a) 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 (BAT). 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 (b).

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 (EPA 440/1-82/014). Table III-7, pp. 49-54.

40 C.F.R. s. 122.45(b) reads as follows: The calculation of any permit limitations, standards, or prohibitions which are based on production (or other measure of operation) 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 (kilograms per 1,000 m^3 of feedstock)	
Phenolic compounds (4AAP):		
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 (pounds per 1,000 bbl of feedstock)	
Phenolic compounds (4AAP):		
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 (3) (b).

(4) The provisions of s. NR 279.13(4) apply to discharges of process wastewater pollutants attributable to ballast water by a point source subject to the provisions of this subcategory.

(5) 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. (2). Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg/l.

(6) 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.

(a) 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 (TOC) based upon an analysis of any single grab or composite sample.

(b) 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 (kilograms per 1,000 cubic meters of flow)	
Phenolic compounds (4AAP)	0.35	0.17
Total chromium	0.6	0.21
Hexavalent chromium	0.062	0.028
COD[1]	360.0	180.0
	English units (pounds per 1,000 gallons of flow)	
Phenolic compounds (4AAP)	.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 (1000 ppm), 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 (BCT). (1) 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 (BCT):

Pollutant or pollutant property	BCT effluent limitations: Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 m^3 of feedstock)	
BOD_5	54.4	28.9
TSS	37.3	23.7
Oil and grease	17.1	9.1
pH	(1)	(1)
	English units (pounds per 1,000 bbl of feedstock)	
BOD_5	19.2	10.2
TSS	13.2	8.4
Oil and grease	6.0	3.2
pH	(1)	(1)

[1] Within the range of 6.0 to 9.0.

(2) The limits set forth in sub. (1) 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.

(a) 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

(b) 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 (2) (c).

(3) The provisions of s. NR 279.14 (3) apply to discharges of process wastewater pollutants attributable to ballast water by a point source subject to the provisions of this subcategory.

(4) 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. (2).

(5) 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.

(a) 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.

(b) 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 (kilograms 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	(1)	(1)
	English units (pounds per 1,000 gallons of flow)	
BOD_5	0.4	0.22
TSS	0.28	0.18
Oil and grease	0.13	0.067
pH	(1)	(1)

[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 (PSES). Except as provided in 40 C.F.R. ss. 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 C.F.R. Part 403 and achieve the following pretreatment standards for existing sources (PSES). 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 (mg/l)
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 (1) and (2).

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

NR 279.56 Standards of performance for new sources (NSPS). (1) Any new source subject to this subcategory shall achieve the following new source performance standards (NSPS):

	NSPS effluent limitations	
Pollutant or pollutant property	**Maximum for any 1 day**	**Average of daily values for 30 consecutive days**
	Metric units (kilograms per 1,000 m^3 of feedstock)	
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	(2)	(2)
	English units (pounds per 1,000 bbl of feedstock)	
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	(2)	(2)

[1] See footnote following table in s. NR 279.13 (4).

[2] Within the range of 6.0 to 9.0.

(2) The limits set forth in sub. (1) 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.

(a) 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

(b) 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 (2) (c).

(3) The provisions of s. NR 279.16 (3) apply to discharges of process wastewater pollutants attributable to ballast water by a point source subject to the provisions of this subcategory.

(4) 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. (2). 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 (PSNS). Except as provided in 40 C.F.R. s. 403.7 any existing source subject to this subcategory which introduces pollutants into a publicly owned treatment works shall comply with 40 C.F.R. Part 403 and achieve the following pretreatment standards for new sources (PSNS).

(1) 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 (mg/l)
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 279.56 (1) and (2).

(2) The following standard is applied to the cooling tower discharge part of the total refinery flow to the POTW by multiplying:

(a) The standards;

(b) By the total refinery flow to the POTW; and

(c) 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 (mg/l)
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 SECTION
40 C.F.R. Part 419	ch. NR 279
40 C.F.R. s. 125.30 - 125.32	s. NR 211.14, s. 147.04 (3), Stats.
40 C.F.R. Part 401	chs. NR 205, 215, 219
40 C.F.R. Part 403	ch. NR 211
40 C.F.R. s. 403.7	s. NR 211.13
40 C.F.R. s. 403.13	s. 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 (4AAP)

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 (Naphtha Strip), Bright Stock Treating

26. Centrifuge & Chilling

27. MEK Dewaxing, Ketone Dewaxing, MEK-Toluene Dewaxing

28. Deoiling (wax)

29. Naphthenic Lubes Production

30. SO_2 Extraction

34. Wax Pressing