Chapter NR 279

PETROLEUM REFINING

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Note: Chapter NR 279 as it existed on October 31, 1986 was repealed and a new chapter NR 279 was created effective November 1, 1986.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 effuent 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 TSS	22.7	12.0
COD ¹	15.8 117.0	10.1 60.3
Oil and grease Phenolic compounds	6.9 0.168	3.7 0.076
Ammonia as Ñ	2.81	1.27
Sulfide Total chromium	0,149 0,345	0.068 0.2
Hexavalent chromium	0.028	0.012
pН	(2)	(2)

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· ·	English units (pounds per 1,000 bbl of feedstock)		
BOD ₅	8.0	4.25	Т
TSS	5.6	3.6	
COD1	41,2	21,3	
Oil and grease	2.5	1.3	
Phenolic compounds	0.06	0.027	
Ammonia as Ñ	0.99	0.45	
Sulfide	0.053	0.024	
Total chromium	0.122	0.071	
Hexavalent chromium	0.01	0.0044	
pН	(2)	(2)	

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

(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
25.0 to 149.9	1.5
50.0 or greater	1.57

(b) Process factor.

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.

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	0.038	0.021
COD ¹	0.47	0.24
Oil and grease	0.015	0.008
pН	(2)	(2)
•	English units (p	ounds 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).

(4) The quantity and quality of pollutants or pollutant properties controlled by this subsection, attributable to once-through cooling water,

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² Within the range of 6.0 to 9.0.

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 I day	Average of daily values for 30 consecutive days	
4 - 7 - 7	Metric units (kilograms per 1,000 cubic meters of flow)		
BOD ₅	48.0	26.0	
TSS	33.0	21.0	
COD	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 ⁴	3.0	1.5	
Oil and grease	0.13	0.067	
Phenolic compounds (4AAP		0.0014	
Total chromium	0.006	0.0035	
Hexavalen chromium	0.00052	0.00028	
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/i (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.

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 Register, October, 1986, No. 370

² Within the range 6.0 to 9.0.

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 feedsto	
COD¹ Ammonia as N Sulfide	117 2.81 0.149	60,3 1.27 0.068
	English units (pou	nds per 1,000 bbl of feedstock)
COD¹ Ammonia as N Sulfide	41.2 0.99 0.053	21,3 0.45 0.024

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

(a) Size factor.

1000 bbl. of feedstock per st	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.

⁽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.

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.

BAT effluent limitations factor

	BAT emue	emuent amitations lactor		
Pollutant or pollutant property and process type	Maximum for any 1 day	Average of daily values for 30 consecutive days		
.•	Metric units (kilogr	Metric units (kilograms per 1,000 m ³ of feedstock)		
Phenolic compounds (4AAF	?);			
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	on 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 alkalatic	on 0.905	0.106		
Hexavalent chromium: Crude		*****		
Crude	0.0019	0.0009		
Cracking and coking	0.0218	0.0098		
Asphalt	0.0117	0.0053		
Lube	0.0549	0.0248		
Reforming and alkylatic		0,0088		
	English units (pour	ids per 1,000 bbl of feedstock)		
Phenolic compounds (4AAF	?):			
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		0.032		
Total chromium:	,	0,000		
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		0.037		
Hexavalent chromium:	01101	VIVO1		
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		0.0031		
Trestanting and anylatin	ATT 0.0000	AMANAT		

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.

BAT effluent limitations for ballast water

Pollulant or pollutant property	Maximum for any Average of daily values for a consecutive days	
*.	Metric units (kilograms per cubic meter of flow)	
COD1	0.47 0.24	
	English units (pounds per 1,000 gal. of flow)	
CODi	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 BOD₅. If in the judgment of the regional administrator, adequate correlation data are not available, the effluent limitations for TOC shall be established at a ratio of 2.2 to 1 to the applicable effluent limitations on BOD₅.

- (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 (kilogran	Metric units (kilograms per 1,000 cubic meters of flow)		
Phenolic compounds (4AAP) Total chromium Hexavalent chromium COD') 0,35 0,6 0,062 360.0	0.17 0.21 0.028 180.0		
_	English units (pounds per 1,000 gallons of flow)			
Phenolic compounds (4AAP Total chromium Hexavalent chromium COD ¹) .0029 .005 .00052 3.0	.0014 .0018 .00023 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 BODs. 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 BODs.

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):

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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)		
BOD₀	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	
pН	(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 TSS Oil and grease pH	0.048 0.033 0.015 (1)	0.026 0.021 0.008 (1)	
	English units (pounds per 1,000 gallons of flow)		
BOD ₅ TSS Oil and grease pH	0.4 0.26 0.126 (1)	0.21 0.17 0.067 (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

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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)		
BOD₅	48.0	26.0	
TSS	. 33.0	21.0	
Oil and grease	15.0	8.0	
pН	(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)	
77		
Oil and grease	100.0	
Ammonia as N	1100.0	

 $^{^1}$ 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):

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NSPS effluent limitations

		11010 022007 7-3120001	
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	11,8	6,3	
TSS	8.3	4.9	
COD1	61.0	32.0	
Oil and grease	3.6	1,9	
Phenolic compounds	0.088	0.043	
Ammonia as Ñ	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	
COD1	21.7	11.2	
Oil and grease	1.3	0.7	
Phenolic compounds	0.031	0.016	
Ammonia as Ñ	1.0	0.45	
Sulfide	0.027	0.012	
Total chromium	0.064	0.037	
Hexavalent chromium	0.0052	0.0025	
pН	(2)	(2)	

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

(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.

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.

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 TSS COD ¹ Oil and grease pH	0.048 0.033 0.47 0.015 (2)	0.026 0.021 0.24 0.08 (2)	
To the Asia Care	English units (pounds per 1,000 gal of flow)		
BOD ₅ TSS COD ¹ Oil and grease pH	0.40 0.27 3.9 0.126 (2)	0.21 0.17 2.0 0.067 (2)	

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

(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-

² Within the range of 6.0 to 9.0.

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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	1100.0	

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:

BPT effluent limitations

Pollulant 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)	
BODs	28.2	15.6
TSS	19.5	12.6
COD_t	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)
*1	English units (pounds per 1,000 hbl 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).

(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.

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.

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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:

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)		
BODs TSS COD¹ Oil and grease Phenolic compounds (4AAP Total chromium Hexavalent chromium pH	48.0 33.0 360.0 15.0) 0.35 0.73 0.062 (2)	26.0 21.0 180.0 8.0 0.17 0.43 0.028 (2)	
_	English units (pounds per 1,000 gallons of flow)		
BOD₅ TSS COD¹	0.4 0.28 3.0	0.22 0.18 1,5	
Oil and grease Phenolic compounds (4AAP Total chromium Hexavalent chromium	0.006 0.00052	0.067 0.0014 0.0035 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 BOD5.

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:

BAT effluent limitations

	2	THE CASE STREET	
Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 30 consecutive days	
	Metric units (kilograms per 1,000 m3 of feedstock)		
COD¹ Ammonia as N Sulfide	210.0 18.8 0.18	109.0 8.5 0.082	
	English units (pounds per 1,000 bbl of feedstock)		
COD¹ Ammonia as N Sulfide	74.0 6.6 0.065	38.4 3.0 0.029	

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

² 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	r
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	٠.
100.0 to 124.9	1.23	
125.0 to 149.9	1.35	
150.0 or greater	1.41	Tates

(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 Guldelines, 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.

	BAT effluent limitations factor	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
13	Motrie unita (kiloar	ams per 1,000 m ³ of feedstock)
Dhanalla sammannda (4 A A D		ams per 1,000 m of recustock)
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 alkylatio	n 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 alkylatio	n 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 alkylatio	n 0.0196	0.0088
English units (pounds per 1,000 bb		
Phenolic compounds (4AAP		are per 1/000 and or recentionary
Crude	0.013	0.000
		0.003
Cracking and coking	0.147	0.036
Asphalt	0.079	0.019
Lube	0.369	0.09
Reforming and alkylatio	n 0.132	0.032
Potal 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	n 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	0.0013
Deforming and allerlation		0.0001

Note: See the comprehensive example in s. NR 279.43 (3) (b).

Reforming and alkylation

(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). Oncethrough 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.

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(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

	27112	Mach. Hillandrops
Poliutant or poliutant property	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograt	ns per 1,000 cubic meters of flow)
Phenolic compounds (4AA) Total chromium Hexavalent chromium COD¹) 0.35 0.6 0.962 360.0	0.17 0.21 0.028 180.0
	English units (por	inds per 1,000 gallons of flow)
Phenolic compounds (4AAP Total chromium Hexavalent chromium COD ⁵) .0029 .005 .00052 3.0	.0014 .0018 .00023 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 BODs. 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 BODs.

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

(a) Size factor.

⁽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.

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:

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BCT effluent limitations

Pollutant or pollutant	Maximum for any	Average of daily values for 30
property	1 day	consecutive days
	Metric units (kilograms per 1,000 cubic meters of flow)	
BOD₅ TSS	48.0	26.0
	33.0	21.0
Oil and grease	15.0	8.0
pН	(1)	(1)
	English units (pounds per 1,000 gallons of flow)	
BOD ₅ TSS	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 Ammonia as N	100.0 100.0	

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):

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 m3 of feedstock)	
BOD ₅ TSS COD¹ Oil and grease Phenolic compounds Ammonia as N Sulfide Total chromium Hexavalent chromium pH	16.3 11.8 118.0 4.8 0.119 18.8 0.105 0.24 0.02 (2)	8.7 7.2 61.0 2.6 0.058 8.6 0.048 0.14 0.0088 (2)

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 _	English units (pounds per 1,000 bbl of feedstock)	
BODs TSS COD¹ Oil and grease Phenolic compounds Ammonia as N Sulfide Total chromium	5.8 4.0 41.5 1.7 0.042 6.6 0.037 0.084	3.1 2.5 21.0 0.93 0.020 3.0 0.017 0.049
Hexavalent chromium pH	0.0072 (2)	0.0032 (2)

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 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	$\bar{1.09}$
6.5 to 6.99	1.19
7.0 to 7.49	1.29
7.5 to 7.99	$\overline{1.41}$
8.0 to 8.49	1.53
8.5 to 8.99	$\overline{1.67}$
9.0 to 9.49	1.82
9.5 or greater	1.89

Note: See the comprehensive example in s. NR 279.42 (2) (e).

- (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 coolRegister, October, 1986, No. 370

² Within the range of 6.0 to 9.0.

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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	1100.0	

- 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
- $\left(c\right)$ By the ratio of the cooling tower discharge flow to the total refinery flow.

Pollutant or pollutant property	Pretreatment standards for new sources — maximu 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 Register, October, 1986, No. 370

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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

Poliutant 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	
CODi	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	
рН	(2)	(2)	
	English units (pounds per 1,000 bbl of feedstock)		
BOD ₆	12.1	6.5	
TSS	8.3	5.25	
COD1	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).

(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.

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.

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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 (kilogra	ms 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		0.17
Total chromium	0.73	0.43
Hexavalent chromium	0.062	0.028
pH	(2)	(2)
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	English units (pounds	per 1,000 gallons of flow)
BOD ₅	0,4	0.22
TSS	0.28	0.18
COD [†]	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
рH	(2)	(2)

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 BODs. 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 BODs.

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

	MINELLY DELIGHTANGE	
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)	
COD¹ Ammonia as N Sulfide	210.0 23.4 0.22	109.0 10.6 0.099
	English units (pou	nds per 1,000 bbl of feedstock)
COD¹ Ammonia as N Sulfide	74.0 8.25 0.078	38.4 3.8 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.

² Within the range 6.0 to 9.0.

Process configuration	Process f	actor
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 effic	ient limitations factor	
	Maximum for any 1 day	Average of daily val consecutive days	ues for 30
	Metric units (kilos	rams per 1,000 m ³ of feedsto	ek)
Phenolic compounds (4AA)		ramo per ajeso in criteriore	,
Crude Cracking and coking Asphalt Lube	0.037 0.419 0.226 1.055	0.009 0.102 0.055 0.257	
Reforming and alkylati Total chromium:		0.092	
Crude Cracking and coking Asphalt Lube Reforming and alkylati	0.03 0.34 0.183 0.855 on 0.305	0.011 0.118 0.064 0.297 0.106	
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Hexavalent chromium: Crude Cracking and coking Asphalt Lube Reforming and alkylation	0.0019 0.0218 0.0117 0.0549 0.0196	0.0009 0.0098 0.053 0.0248 0.0088	
	English units (pound	ls per 1,000 bbl of feedstoc	k)
Phenolic compounds (4AAP):			
Crude	0.013	0.003	
Cracking and coking	0.147	0.036	
Asphalt	0.079	0.019	
Lube	0.869	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	4
Reforming and alkylation	0.107	0.037	
Hexavalent chromium:	0.000=		
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:

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BAT effluent limitations

Pollutant or pollutant property	Maximum for any I day	Average of daily values for 30 consecutive days	
	Metric units (kilograms per 1,000 cubic meters of flow)		
Phenolic compounds (4AAP) Total chromium Hexavalent chromium COD¹	9) 0.35 0.6 0.062 360.0	0,17 0,21 0,028 180.0	
_	English units (pou	nds per 1,000 gallons of flow)	
Phenolic compounds (4AA) Total chromium Hexavalent chromium COD ¹	?) .0029 .005 .00052 3.0	.0014 .0018 .00023 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 BOD5. 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 BOD5.

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 ation . 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 (kilogra	ms per 1,000 m ³ of feedstock)
BOD ₅ TSS Oll and grease pH	34.6 23.4 11.1 (1)	18.4 14.8 5.9 (1)
_	English units (poun-	ds per 1,000 bbl of feedstock)
BOD ₅ TSS Oil and grease pH	12.1、 8.3 3.9 (1)	6.5 5.25 2.1 (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, Markette (1997)
 Mar
 - (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.

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BCT effluent limitations

Pollufant or pollufant 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 ₆ TSS Oil and grease pH	48.0 33.0 15.0 (1)	26.0 21.0 8.0 (1)	
	English units (po	unds per 1,000 gallons of flow)	
BOD ₅ TSS Oil and grease pH	0.4 0.28 0.13 (1)	0.22 0.18 0.067 (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 Ammonia as N	100.0 1100.0	

 $^{^{\}circ}$ 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):

NSPS effluent limitations

	azimum for any lay	Average of daily values for 30 consecutive days	
	Metric units (kilograms per 1,000 m ³ of feedstock)		
use mpounds s N nium chromium	21.8 14.9 133.0 6.6 0.158 23.4 0.14 0.32 0.025 (2)	11.6 9.5 69.0 3.5 0.077 10.7 0.063 0.19 0.012 (2)	
ctober, 1986, No. 8	(2)		

· · · · · ·	English units (pounds per 1,000 bbl of feedstock)		
BOD ₅ TSS	7.7	4.1	
TSS	5.2	3.3	
CODi	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	
pН	(2)	(2)	

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	٧	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	And the state of	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 / t++	1.51	
9.0 to 9.49	*1	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
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² Within the range of 6.0 to 9.0.

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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.

Poliutant or poliutant property	Pretreatment standards for new sources — maximum for any 1 day	
	Milligrams per liter (mg/i)	
Oil and grease	100.0	
Ammonia as N	1100.0	

- 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 sour for any 1 day	Pretreatment standards for new sources — maximum for any 1 day	
	Milligrams per liter (mg/l)	1.73	
Total chromium	1:0	<u> </u>	

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):

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BPT effuent 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
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 pH	0.068 (2)	0.03 (2) nds per 1,000 bbl of feedstock)
BOD		
BOD ₆	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 pH	0.024 (2)	0.011 0.011 (2)

 $^{^{\}rm 1}$ See footnote following table in s. NR 279.13 (4).

(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
25.0 to 149.9	0.97
50.0 to 174.9	1.05
75.0 to 199.9	1.14
300.0 or greater	1.19

⁽b) Process factor.

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.

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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

	Constitution	4.
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	
Asphalt	Asphalt production Asphalt oxidation Asphalt emulsifying	12
Process	Capacity Capacity Weighting (1,000 bbl per relative to factor stream day) throughput	Processing configuration
Crude: Atm Vacuum Desalting Total	125.0 1.0 60.0 0.48 125.0 1.0 2.48 ×1	=2.48

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Cracking; FCC Hydro-	41.0	0.328		
cracking Total	20.0	$0.16 \\ 0.488$	×6	=2.93
Lubes	5.3 4.0 4.9	$0.042 \\ 0.032 \\ 0.039$		
Total		0.113	×13	=1.47
Asphalt	4.0	0.032	× 12	=0.88
Refinery process		i		
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. BOD₅ limit (maximum for any 1 day) = $17.9 \times 0.88 \times 0.97 = 15.3$ 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:

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BPT effluent limitations

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilogram	ms per 1,000 cubic meters of flow)
BOD ₅ TSS COD ¹ Oil and grease Phenolic compounds (4AAI Total chromium Hexavalent chromium pH	48.0 38.0 360.0 15.0 9) 0.35 0.73 0.062 (2)	26.0 21.0 180.0 8.0 0.17 0.43 0.028 (2)
-	English units (por	unds per 1,000 gallons of flow)
BOD ₅ TSS COD ¹ Oil and grease Phenolic compounds (4AAI Total chromium Hexavalent chromium pH	0.4 0.28 3.0 0.13 0.0029 0.006 0.00052 (2)	0.22 0.18 1.5 0.067 0.0014 0.0035 0.00028 (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 BODs.

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):

BAT effluent limitations

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values consecutive days	for 30
A. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	Metric units	s (kilograms per 1,000 m³ of feedstock)	214 Militar
COD¹ Ammonia as N Suifide	360.0 23.4 0.33	187.0 10.6 0.15	• .
4 (4 (4 (4 (4 (4 (4 (4 (4 (4 (4 (4 (4 (4	English uni	its (pounds per 1,000 bbl of feedstock)	
COD¹ Ammonia as N Sulfide	127.0 8.3 0.118	66.0 3.8 0.053	191 d 1

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

(a) Size factor.

² 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.

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
25.0 to 149.9	0.97
50.0 to 174.9	1.05
175.0 to 199.9	1.14
300.0 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 Effuent 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 by 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.

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BAT effluent limitation factor

	Maximum for any 1 day	Average of daily values for 30 consecutive days
	- 	ams per 1,000 m ³ of feedstock)
Phenolic compounds (4AAP)		ams per 1,000 m of feedstock/
Crude	0.037	0.009
Cracking and coking	0.419	0.102
Asphalt	0.226	0.055
Lube	1.055	0.257
Reforming and alkylatio		0.092
Total chromium:		0,002
Crude	0.03	0.011
Cracking and coking	0.03	0.118
Asphalt	0.183	0.064
Laibe	0.855	0.297
Reforming and alkylatio		0.106
	0.000	0.100
Hexavalent chromium:	0.0010	0.0000
Crude	0.0019	0.0009
Cracking and coking	0.0218	0.0096
Asphalt	0.0117	0.0053
Lube	0,0549 n 0.0196	0.0248
Reforming and alkylatio	7.	0.0088
<u>-</u>	English units (poun	ds 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 alkylatio	n 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 alkylatio	n 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 alkylatio	n 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.

Refine	ry process	Process feedstock rate 1,000 bbl/day
	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
	O-11-	*************************

	aximum for any day	Average of daily values for 30 consecutive days
·	Metric units (kilogran	ns per 1,000 cubic meters of flow)
Phenolic compounds (4AAP) Total chromium Hexavalent chromium COD ¹	0.35 0.6 0.062 360,0	0.17 0.21 0.028 180.0

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	English units (pounds per 1,000 gallons of flow)	
Phenolic compounds (4AAP) Total chromium Hexavalent chromium COD¹	.0029 .005 .00052 3.0	.0014 .0018 .00023 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 BODs. 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 BODs.

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):

DOM	- Museut	limitations

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilogra	ams per 1,000 m ³ of feedstock)
BOD ₅ TSS Oil and grease pH	50.6 35.6 16.2 (1)	25.8 22.7 8.5 (1)
* * * * * * * * * * * * * * * * * * * *	English units (poun	ds per 1,000 bbl of feedstock)
BOD ₆ TSS Oil and grease pH	17.9 12.5 5.7 (1)	9,1 8,0 3,0 (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 fac	tor
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 l	imitations
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 ₆ TSS Oil and grease pH	48.0 33.0 15.0 (1)	26.0 21.0 8.0 (1)

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	English units (pound	s per 1,000 gallons of	flow)
BOD ₅ TSS	0.4	0.22	
TSS Oil and grease	0.28 0.13	0.18 0.067	. *: *
pH	(1)	(1)	1 / Jak

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:

Poliutant or poliutant property	Pretreatment standards for existing sources — maximum for any 1 day
	Milligrams per liter (mg/l)
Oil and grease Ammonia as N	100.0 1100.0

 $^{^1}$ 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
(t - t)	Metric units (kilogo	rams per 1,000 m ³ of feedstock)
BOD ₆	34.6	18.4
TSS	23.4	14.9
COD1	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 (pou	nds per 1,000 bbl of feedstock)
BOD ₅	12.2	6.5
TSS	8.3	5.3
CODi	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.

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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	1100.0	

- 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	
Total chromium	Milligrams per liter (mg/l) 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
		ams per 1,000 m ³ of feedstock)
BODs TSS COD¹ Oil and grease Phenolic compounds Ammonia as N Sulfide Total chromium Hexavalent chromium pH	54.4 37.3 388.0 17.1 0.4 23.4 0.35 0.82 0.068 (2)	28.9 23.7 198.0 9.1 0.192 10.6 0.158 0.48 0.032 (2)

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	English units (pounds per 1,000 bbl of feedstock)	
BOD ₅ TSS	19,2	10.2
	13.2	8.4
COD1	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) 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 coolRegister, October, 1986, No. 370

² Within the range of 6.0 to 9.0.

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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 efficient limitations

Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilog	grams per cubic meter of flow)
BOD ₅	48.0	26.0
TSS	33.0	21.0
CODt	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 (por	inds per 1,000 gallons of flow)
BOD ₆	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
Hexayalent chromium	0.00052	0.00023
рН	(2)	(2)

In any case in which the applicant can demonstrate that the chloride ion concentration in the effluent exceeds 1,000 mg/i (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 BODs.

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 Register, October, 1986, No. 370

² Within the range 6.0 to 9.0.

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effluent reduction attainable by the application of the best available technology economically achievable (BAT):

BAT effluent limitations

Pollutant or pollutant	Maximum for any	Average of daily values for 30
property	1 day	consecutive days
	Metric units (kilograms per 1,000 m ³ of feedstock)	
COD1	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)	
COD1	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

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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 446/1-82/014). 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.

Metric units (kilograms per 1,000 m³ of feedstock)	and the second	BAT effu	BAT effluent limitations factor	
Phenolic compounds (4AAP): Crude	Pollutant or pollutant property and process type		Average of daily values for 30 consecutive days	
Phenolic compounds (4AAP): Crude		Metric units (kilogr	rams ner 1.000 m³ of feedstock)	
Crude 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: 0.019 0.009 Gracking 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<	Phenolic compounds (AAA			
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: 0.03. 0.011 Crude 0.03. 0.118 Asphalt 0.183 0.064 Lube 0.855 0.297 Reforming and alkylation 0.305 0.106 Hexavalent chromium: 0.019 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:			0.009	
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Lube 1.055 0.257 Reforming and alkylation 0.377 0.092 Total chromium: 0.03 0.011 Crude 0.03 0.118 Asphalt 0.183 0.064 Lube 0.855 0.297 Reforming and alkylation 0.305 0.106 Hexavalent chromium: 0.0019 0.0009 Crude characteristic chromium: 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) 0.088 Phenolic compounds (4AAP): 0.013 0.003 Crude 0.013 0.003 Crude 0.0479 0.019 Asphalt 0.079 0.019 Lube 0.369 0.09 Reforming and alkylation 0.132 0.032 Total chromium: 0.011 0.004 Crude 0.011 0.004				
Reforming and alkylation				
Total chromium: Crude				
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Lube 0.299 0.104 Reforming and alkylation 0.107 0.037 Hexavalent chromium: 0.0007 0.0003 Crude 0.0076 0.0034 Asphalt 0.0041 0.0019 Lube 0.0192 0.0087		0.064		
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Asphalt 0.0041 0.0019 Lube 0.0192 0.0087	Cracking and coking	0.0076	0.0034	
		0.0041	0.0019	
Reforming and alkylation 0.0089 0.0031	Lube	0.0192	0.0087	
	Reforming and alkylat	ion 0.0089	0.0031	

Note: See the comprehensive example in s. NR 279.43 (3) (b).

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- (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). Oncethrough 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 (kilogran	ns per 1,000 cubic meters of flow)
Phenolic compounds (4AAP) Total chromium Hexavalent chromium COD¹	P) 0.35 0.6 0.062 360.0	0.17 0.21 0.028 180.0
•	English units (pou	inds per 1,000 gallons of flow)
Phenolic compounds (4AA) Total chromium Hexavalent chromium COD ¹	P) .0029 .005 .00052 3.0	.0014 .0018 .00028 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 BODs. 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 BODs.

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 pollulant 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):

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BCT effluent limitations

4		
Poliutant 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 TSS Oil and grease pH	54.4 37.3 17.1 (1)	28.9 23.7 9.1 (1)
	English units (pou	nds per 1,000 bbl of feedstock)
BOD ₆ TSS Oll and grease pH	19.2 13.2 6.0 (1)	10.2 8.4 3.2 (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 ₆ TSS Oil and grease pH	48.0 33.0 15.0 (1)	26.0 21.0 8.0 (1)
	English units (por	unds per 1,000 gallons of flow)
BOD ₅ TSS Oil and grease pH	0.4 0.28 0.13 (1)	0.22 0.18 0.067 (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/t)
Oil and grease Ammonia	100.0 1100.0

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).

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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 Maximum for any Average of daily values for 30 property consecutive days Metric units (kilograms per 1,000 m3 of feedstock) BODs TSS COD1 $\frac{41.6}{28.1}$ $\frac{22.1}{17.9}$ 295.0 152.0 Oil and grease Phenolic compounds 6.7 0.14 12.6 0.3Ammonia as Ñ $\frac{23.4}{0.26}$ $\begin{array}{c} 10.7 \\ 0.12 \end{array}$ Sulfide Total chromium Hexavalent chromium 0.0520.024pΗ (2)(2)English units (pounds per 1,000 bbl of feedstock) BOD₅ TSS COD¹ 7.8 6.3 14.7 9.9 104.0 54.0 Oil and grease 2.4 0.051 4.50.105 8.3 Phenolic compounds Ammonia as N Sulfide 0.093 0.042Total chromium 0.019 (2) 0.0084Hexavalent chromium (2)рH

(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.

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.

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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	1100,0

- 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 279.66 (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.

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Pollutant or pollutant property	Pretreatment standards for new sources — maximum for any 1 day	
7100 -	Milligrams per liter (mg/i)	
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	
40 C.F.R. s. 125.30 - 125.32	
	Stats.
40 C.F.R. Part 401	
40 C.F.R. Part 403	cn. NR 211
40 C.F.R. s. 403.7	
40 C.F.R. s. 403.13	S. NK Z11.14

History: Cr. Register, October, 1986, No. 870, 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

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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. SO₂ Extraction
 - 34. Wax Pressing