



CR 85-206

State of Wisconsin

DEPARTMENT OF NATURAL RESOURCES

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Secretary

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STATE OF WISCONSIN)
)
DEPARTMENT OF NATURAL RESOURCES) ss

TO ALL TO WHOM THESE PRESENTS SHALL COME, GREETINGS:

I, Bruce B. Braun, Deputy Secretary of the Department of Natural Resources and custodian of the official records of said Department, do hereby certify that the annexed copy of Natural Resources Board Order No. WW-8-86 was duly approved and adopted by this Department on May 29, 1986. I further certify that said copy has been compared by me with the original on file in this Department and that the same is a true copy thereof, and of the whole of such original.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the official seal of the Department at General Executive Facility #2 in the City of Madison, this 18th day of July, 1986.

Bruce B. Braun
Bruce B. Braun, Deputy Secretary

(SEAL)

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ORDER OF THE STATE OF WISCONSIN
NATURAL RESOURCES BOARD REPEALING
AND RECREATING RULES

.....
IN THE MATTER of repealing and recreating .
ch. NR 279 of the Wisconsin Administrative .
Code pertaining to the effluent .
limitations and pretreatment standards for .
the petroleum refining industry. .
.....

WW-8-86

Analysis Prepared by Department of Natural Resources

The Federal Water Pollution Control Act Amendments of 1972 established a comprehensive program to "restore and maintain the chemical, physical and biological integrity of the Nation's waters" (Section 101(a)). To implement the Act, the U.S. Environmental Protection Agency issued effluent limitations guidelines, pretreatment standards, and new source performance standards for industrial dischargers. The Clean Water Act of 1977 expanded on the federal program of pollution control by setting different types of effluent limitations, "best practicable technology" (BPT), "best available technology" (BAT), "best conventional technology" (BCT), "new source performance standards" (NSPS), "pretreatment standards for existing sources" (PSES), and "pretreatment standards for new sources" (PSNS). The Clean Water Act stressed control of toxic pollutants, including 65 "priority" pollutants and classes of pollutants in 21 major industries.

The state of Wisconsin Department of Natural Resources instituted the Wisconsin Pollutant Discharge Elimination System in 1976. This system included regulation of effluent discharges in various industries. The state of Wisconsin Department of Natural Resources promulgated ch. NR 279, Wis. Adm. Code, to regulate the petroleum refining industry. The provisions of this chapter were based on the regulations of the Environmental Protection Agency in 40 C.F.R. Part 419.

The purpose of the modification of this rule is to specify effluent limitations for BPT, BAT, BCT, NSPS for direct dischargers and to establish pretreatment standards for indirect dischargers. The effect of the repeal and recreation of ch. NR 279, Wis. Adm. Code will be to clarify and update standards and provisions of effluent limitations in the petroleum refining industry. This will reflect changes made by the Environmental Protection Agency under the authority of Sections 301, 304, 306, 307, 308 and 501 of the Clean Water Act.

Petroleum refining is a complex combination of interdependent operations engaged in physical separation and chemical conversion of petroleum molecular constituents. There are approximately 150 separate processes, and many more process combinations, in the petroleum refining industry that are employed depending on the type of crude being processed, the type of product being produced, and the characteristics of the particular refinery. The first

process step in the refinery consists of physically separating crude oil into a number of fractions of varying molecular weights by distillation.

Intermediate products, which have undergone further physical and chemical conversion processes, are then blended in the required proportions to manufacture the finished products.

The petroleum refining industry is subcategorized using mathematical models that correlate achievable effluent flow with process variables. Traditional subcategorization, based on the principle factors which affect effluent flow, is not feasible for this industry because of the complexity of the refining facilities; over 150 distinct processes are used. Size and types of processes employed are the principle factors affecting effluent flow in petroleum refining. It is not practical to subcategorize refineries on the basis of both of these factors because there would be too many subcategories containing few facilities. Mathematical flow models are used to correlate achievable effluent flow with a relatively small number of process variables by dividing the industry into five discrete subcategories and then calculating factors for refinery size, process configuration, and allowable wasteload. This results in refineries grouped within subcategories in increments of production capacity and process configuration. The five subcategories in the mathematical model of the petroleum refining industry are topping refineries, cracking refineries, petrochemical refineries, lube refineries, and integrated refineries.

This rule also establishes BPT, BCT and BAT effluent limitations guidelines for contaminated stormwater runoff. For this rule, contaminated runoff is runoff which comes into contact with any raw material, intermediate product, finished product, by-product or waste product located on petroleum refinery property. Any other stormwater runoff at a refinery is considered uncontaminated. Runoff is the flow of stormwater resulting from precipitation coming into contact with petroleum refinery property. Contaminated runoff constitutes an additional source of pollution which must be managed during periods of precipitation along with process wastewater from refinery operations. In this rule, effluent limitations are not established for uncontaminated runoff and are reserved for NSPS for contaminated runoff. Wastewater consisting solely of contaminated runoff may be discharged directly without treatment if it does not exceed 15 mg/l oil and grease and 110 mg/l TOC.

Refinery wastewaters contain a wide range of organic and metal pollutants originating from the crude oil or produced in the process units. Because oil is the main constituent in the manufacturing operation, it is the most common contaminant encountered in the wastewater streams. Petroleum refinery wastewaters also contain concentrations of contaminants such as sulphides, mercaptans, cyanides, inorganic salts, suspended solids, benzene derivatives, other hydrocarbons and heavy metals. The quantities and types of refinery wastewaters depend on the nature of the crude, the processes used, and other factors such as water usage and plant age.

Technical information and more detailed analysis may be located in 2 federal publications. Costs and economic impacts of the technology options considered are discussed in detail in Economic Impact Analysis of Promulgated Effluent Standards and Limitations for the Petroleum Refining Industry (EPA 440/2-82/007, November 1982). A description of the Environmental Protection

Agency's study methodology, data gathering efforts and analytical procedures supporting the rule may be found 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, October 1982). Copies of these sources are available for inspection at the central office of the Department of Natural Resources, the Secretary of State's office, and the office of the Revisor of Statutes. Copies may be obtained for personal use from the National Technical Information Service, Springfield, Virginia 22161, (703) 487-4600.

The proposed rule is identical to 40 C.F.R. Part 419 under s. 227.024(1m), Stats. The rule uses the format and language of the federal regulations. The new format coincides with the Environmental Protection Agency regulations and makes the rule more readily usable and understood by regulating authorities, the industry, and the public. References to sections of the Code of Federal Regulations can be cross-referenced to the proper state code in the table at the end of the rule. Through this method, both the federal and state references will be readily available, and the fewest changes possible are made to the federal code. Several changes have been made to this code as required by the Administrative Rules Procedures Manual: notes of approval by the Office of Management and Budget, the authority section, reserved sections, titles to subsections, the abbreviation "Mbb1" in s. 279.11(7), and subpart divisions were deleted; a cross reference section, definitions for new source and existing source, and a purpose section were added; citation and definition formats were revised; informative sections NR 279.12(2)(c) and NR 279.13(3)(a) and corresponding provisions throughout the rule were redrafted as notes; the term "department" was substituted for "permit writer" and "permitting authority;" s. NR 279.11 was renumbered as s. NR 279.03; and references in the subcategories to s. NR 279.11 were deleted.

Pursuant to the authority vested in the state of Wisconsin Natural Resources Board by ss. 147.01, 147.035, 147.04, 147.06, 147.07, 227.11 and 227.14, Stats., the state of Wisconsin Natural Resources Board hereby repeals and recreates rules interpreting ss. 147.035, 147.04, 147.06 and 147.07, Stats., as follows:

SECTION 1. Chapter NR 279 is repealed and recreated to read:

Chapter NR 279
PETROLEUM REFINING

NR 279.01 Purpose
NR 279.02 Applicability
NR 279.03 General definitions
NR 279.10 Topping subcategory
NR 279.20 Cracking subcategory
NR 279.30 Petrochemical subcategory
NR 279.40 Lube subcategory
NR 279.50 Integrated subcategory
NR 279.60 Cross-references

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.

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.

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.

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.

NR 279.12 EFFLUENT LIMITATIONS GUIDELINES REPRESENTING THE DEGREE OF EFFLUENT REDUCTION AFTAINABLE BY THE APPLICATION OF THE BEST PRACTICABLE CONTROL TECHNOLOGY CURRENTLY AVAILABLE (BPT). (1) Except as provided in 40 C.F.R. ss. 125.30-125.32 any existing point source subject to this subcategory shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT):

Pollutant or pollutant property	BPT effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 m ³ of feedstock)	
BOD ₅	22.7	12.0
TSS	15.8	10.1
COD ¹	117.0	60.3
Oil and grease	6.9	3.7
Phenolic compounds	0.168	0.076
Ammonia as N	2.81	1.27
Sulfide	0.149	0.068
Total chromium	0.345	0.2
Hexavalent chromium	0.028	0.012
pH	(2)	(2)
	English units (pounds per 1,000 bbl of feedstock)	
BOD ₅	8.0	4.25
TSS	5.6	3.6
COD ¹	41.2	21.3
Oil and grease	2.5	1.3
Phenolic compounds	0.06	0.027
Ammonia as N	0.99	0.45
Sulfide	0.053	0.024
Total chromium	0.122	0.071
Hexavalent chromium	0.01	0.0044
pH	(2)	(2)

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

² Within the range of 6.0 to 9.0.

(2) The limits set forth in sub. (1) shall be multiplied by the following factors to 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 to 124.9	1.38
125.0 to 149.9	1.5
150.0 or greater	1.57

(b) Process factor.

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

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

(3) The following allocations constitute the quantity and quality of pollutants or pollutant properties controlled by this subsection and attributable to ballast, which may be discharged after the application of best practicable control technology currently available, by a point source subject to this subcategory, in addition to the discharge allowed by sub. (2). The allocation allowed for ballast water flow, as kg/cu m (lb/M gal), shall be based on those ballast waters treated at the refinery.

Pollutant or pollutant property	BPT effluent limitations for ballast water	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per cubic meter of flow)	
BOD ₅	0.048	0.026
TSS	0.033	0.021
COD ¹	0.47	0.24
Oil and grease	0.015	0.008
pH	(2)	(2)
	English units (pounds per 1,000 gal of flow)	
BOD ₅	0.4	0.21
TSS	0.26	0.17
COD ¹	3.9	2.0
Oil and grease	0.126	0.067
pH	(2)	(2)

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

² Within the range 6.0 to 9.0.

(4) The quantity and quality of pollutants or pollutant properties controlled by this subsection, attributable to once-through cooling water, are excluded from the discharge allowed by sub. (2). Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg/l.

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

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

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

BPT effluent limitations

Pollutant or pollutant property	BPT effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 cubic meters of flow)	
BOD ₅	48.0	26.0
TSS	33.0	21.0
COD ¹	360.0	180.0
Oil and grease	15.0	8.0
Phenolic compounds (4AAP)	0.35	0.17
Total chromium	0.73	0.43
Hexavalent chromium	0.062	0.028
pH	(2)	(2)
	English units (pounds per 1,000 gal of flow)	
BOD ₅	0.4	0.22
TSS	0.28	0.18
COD ¹	3.0	1.5
Oil and grease	0.13	0.067
Phenolic compounds (4AAP)	0.0029	0.0014
Total chromium	0.006	0.0035
Hexavalent chromium	0.00052	0.00023
pH	(2)	(2)

¹ In any case in which the applicant can demonstrate that the chloride ion concentration in the effluent exceeds 1,000 mg/l (1,000 ppm), the department may substitute TOC as a parameter in lieu of COD. A TOC effluent limitation shall be based on effluent data from the particular refinery which correlates TOC to BOD. If in the judgment of the department, adequate correlation data are not available, the effluent limitations for TOC shall be established at a ratio of 2.2 to 1 to the applicable effluent limitations for BOD.

² Within the range 6.0 to 9.0.

NR 279.13 EFFLUENT LIMITATIONS GUIDELINES REPRESENTING THE DEGREE OF EFFLUENT REDUCTION ATTAINABLE BY THE APPLICATION OF THE BEST AVAILABLE TECHNOLOGY ECONOMICALLY ACHIEVABLE (BAT). (1) Except as provided in 40 C.F.R. ss. 125.30-125.32 any existing point source subject to this subcategory shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT):

Pollutant or pollutant property	BAT effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 m ³ of feedstock)	
COD ¹	117	60.3
Ammonia as N	2.81	1.27
Sulfide	0.149	0.068
	English units (pounds per 1,000 bbl of feedstock)	
COD ¹	41.2	21.3
Ammonia as N	0.99	0.45
Sulfide	0.053	0.024

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

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

(a) Size factor.

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

(b) Process factor.

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

Note: See the comprehensive example in s. NR 279.43(2)(c).

(3)(a) In addition to the provisions contained in sub. (1) pertaining to COD, ammonia and sulfide any existing point source subject to this subcategory shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT). For each of the regulated pollutant parameters listed below, the effluent limitation for a given refinery is the sum of the products of each effluent limitation factor times the applicable process feedstock rate, calculated as provided in 40 C.F.R. s. 122.45(b).

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

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

BAT effluent limitations
factor

Pollutant or pollutant property and process type	BAT effluent limitations factor	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 m ³ of feedstock)	
Phenolic compounds (4AAP):		
Crude	0.037	0.009
Cracking and coking	0.419	0.102
Asphalt	0.226	0.055
Lube	1.055	0.257
Reforming and alkylation	0.377	0.092
Total chromium:		
Crude	0.03	0.011
Cracking and coking	0.34	0.118
Asphalt	0.183	0.064
Lube	0.855	0.297
Reforming and alkylation	0.305	0.106
Hexavalent chromium:		
Crude	0.0019	0.0009
Cracking and coking	0.0218	0.0098
Asphalt	0.0117	0.0053
Lube	0.0549	0.0248
Reforming and alkylation	0.0196	0.0088
	English units (pounds per 1,000 bbl of feedstock)	
Phenolic compounds (4AAP):		
Crude	0.013	0.003
Cracking and coking	0.147	0.036
Asphalt	0.079	0.019
Lube	0.369	0.09
Reforming and alkylation	0.132	0.032
Total chromium:		
Crude	0.011	0.004
Cracking and coking	0.119	0.041
Asphalt	0.064	0.022
Lube	0.299	0.104
Reforming and alkylation	0.107	0.037
Hexavalent chromium:		
Crude	0.0007	0.0003
Cracking and coking	0.0076	0.0034
Asphalt	0.0041	0.0019
Lube	0.0192	0.0087
Reforming and alkylation	0.0089	0.0031

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

(4) The following allocations constitute the quantity and quality of pollutants or pollutant properties controlled by this subsection, attributable to ballast, which may be discharged after the application of best available technology economically achievable by a point source subject to the provisions of this subcategory. These allocations are in addition to the discharge allowed by sub. (2). The allocation allowed for ballast water flow, as kg/cu m (lb/M gal), shall be based on those ballast waters treated at the refinery.

Pollutant or pollutant property	BAT effluent limitations for ballast water	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per cubic meter of flow)	
COD ¹	0.47	0.24
	English units (pounds per 1,000 gal. of flow)	
COD ¹	3.9	2.0

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

Pollutant or pollutant property	BAT effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 cubic meters of flow)	
Phenolic compounds (4AAP)	0.35	0.17
Total chromium	0.6	0.21
Hexavalent chromium	0.062	0.028
COD ¹	360.0	180.0
	English units (pounds per 1,000 gallons of flow)	
Phenolic compounds (4AAP)	.0029	.0014
Total chromium	.005	.0018
Hexavalent chromium	.00052	.00023
COD ¹	3.0	1.5

¹ In any case in which the applicant can demonstrate that the chloride ion concentration in the effluent exceeds 1000 mg/l (1000 ppm), the department may substitute TOC as a parameter in lieu of COD. A TOC effluent limitation shall be based on effluent data from the particular refinery which correlates TOC to 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.

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):

BCT effluent limitations

Pollutant or pollutant property	BCT effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 m ³ of feedstock)	
BOD ₅	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	8.0	4.25
TSS	5.6	3.6
Oil and grease	2.5	1.3
pH	(1)	(1)

(1) Within the range 6.0 to 9.0.

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

(a) Size factor.

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

(b) Process factor.

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

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

(3) The following allocations constitute the quantity and quality of pollutants or pollutant properties controlled by this subsection and attributable to ballast, which may be discharged after the application of best conventional pollutant control technology by a point source subject to this subcategory, in addition to the discharge allowed by sub. (2). The allocation allowed for ballast water flow, as kg/cu m (lb/1000 gal), shall be based on those ballast waters treated at the refinery.

BCT effluent limitations
for ballast water

Pollutant or pollutant property	BCT effluent limitations for ballast water	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per cubic meters of flow)	
BOD ₅	0.048	0.026
TSS	0.033	0.021
Oil and grease	0.015	0.008
pH	(1)	(1)
	English units (pounds per 1,000 gallons of flow)	
BOD ₅	0.4	0.21
TSS	0.26	0.17
Oil and grease	0.126	0.067
pH	(1)	(1)

¹ Within the range 6.0 to 9.0.

(4) The quantity and quality of pollutants or pollutant properties controlled by this subsection attributable to once-through cooling water, are excluded from the discharge allowed by sub. (2).

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

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

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

Pollutant or pollutant property	BCT effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 cubic meters of flow)	
BOD ₅	48.0	26.0
TSS	33.0	21.0
Oil and grease	15.0	8.0
pH	(1)	(1)
	English units (pounds per 1,000 gallons of flow)	
BOD ₅	0.4	0.22
TSS	0.28	0.18
Oil and grease	0.13	0.067
pH	(1)	(1)

¹ Within the range 6.0 to 9.0.

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
Oil and grease Ammonia as N	Milligrams per liter (mg/l) 100.0 100.0

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).

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):

NSPS effluent limitations

Pollutant or pollutant property	NSPS effluent limitations	
	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
COD ¹	61.0	32.0
Oil and grease	3.6	1.9
Phenolic compounds	0.088	0.043
Ammonia as N	2.8	1.3
Sulfide	0.078	0.035
Total chromium	0.18	0.105
Hexavalent chromium	0.015	0.0068
pH	(2)	(2)
	English units (pounds per 1,000 gallons of flow)	
BOD ₅	4.2	2.2
TSS	3.0	1.9
COD ¹	21.7	11.2
Oil and grease	1.3	0.7
Phenolic compounds	0.031	0.016
Ammonia as N	1.0	0.45
Sulfide	0.027	0.012
Total chromium	0.064	0.037
Hexavalent chromium	0.0052	0.0025
pH	(2)	(2)

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

² Within the range 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 practicable control technology currently available, by a point source subject to this subcategory, in addition to the discharge allowed by sub. (2). The allocation allowed for ballast water flow, as kg/cu m (lb/Mgal), shall be based on those ballast waters treated at the refinery.

NSPS effluent limitations for ballast water		
Pollutant or pollutant property	Maximum for any 1 day	Average of daily values for 30 consecutive days
Metric units (kilograms per cubic meter of flow)		
BOD ₅	0.048	0.026
TSS	0.033	0.021
COD ¹	0.47	0.24
Oil and grease	0.015	0.08
pH	(2)	(2)
English units (pounds per 1,000 gallons of flow)		
BOD ₅	0.40	0.21
TSS	0.27	0.17
COD ¹	3.9	2.0
Oil and grease	0.126	0.067
pH	(2)	(2)

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

² Within the range 6.0 to 9.0.

(4) The quantity and quality of pollutants or pollutant properties controlled by this subsection, attributable to once-through cooling water, are excluded from the discharge allowed by sub. (2). Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg/l.

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	100.0

¹ Where the discharge to the POTW consists solely of sour waters, the owner or operator has the option of complying with this daily maximum mass limitation for ammonia set forth in s. NR 279.16(1) and (2).

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

- (a) The standard;
- (b) By the total refinery flow to the POTW; and
- (c) By the ratio of the cooling tower discharge flow to the total refinery flow.

Pollutant or pollutant property	Pretreatment standards for new sources -- maximum for any 1 day
Total chromium	Milligrams per liter (mg/l) 1.0

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.

NR 279.22 EFFLUENT LIMITATIONS GUIDELINES REPRESENTING THE DEGREE OF EFFLUENT REDUCTION ATTAINABLE BY THE APPLICATION OF THE BEST PRACTICABLE CONTROL TECHNOLOGY CURRENTLY AVAILABLE (BPT). (1) Except as provided in 40 C.F.R. ss. 125.30-125.32, any existing point source subject to this subcategory shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available:

Pollutant or pollutant property	BPT effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 m ³ of feedstock)	
BOD ₅	28.2	15.6
TSS	19.5	12.6
COD ¹	210.0	109.0
Oil and grease	8.4	4.5
Phenolic compounds	0.21	0.1
Ammonia as N	18.8	8.5
Sulfide	0.18	0.082
Total chromium	0.43	0.25
Hexavalent chromium	0.035	0.016
pH	(2)	(2)
	English units (pounds per 1,000 bbl of feedstock)	
BOD ₅	9.9	5.5
TSS	6.9	4.4
COD ¹	74.0	38.4
Oil and grease	3.0	1.6
Phenolic compounds	0.074	0.036
Ammonia as N	6.6	3.0
Sulfide	0.065	0.029
Total chromium	0.15	0.088
Hexavalent chromium	0.012	0.0056
pH	(2)	(2)

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

² Within the range 6.0 to 9.0.

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

(a) Size factor.

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

(b) Process factor.

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

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

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

(4) The quantity and quality of pollutants or pollutant properties controlled by this subsection, attributable to once-through cooling water, are excluded from the discharge allowed by sub. (2). Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg/l.

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

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

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

Pollutant or pollutant property	BPT effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 cubic meters of flow)	
BOD ₅	48.0	26.0
TSS	33.0	21.0
COD ¹	360.0	180.0
Oil and grease	15.0	8.0
Phenolic compounds (4AAP)	0.35	0.17
Total chromium	0.73	0.43
Hexavalent chromium	0.062	0.028
pH	(2)	(2)

	English units (pounds per 1,000 gallons of flow)	
BOD ₅	0.4	0.22
TSS	0.28	0.18
COD ¹	3.0	1.5
Oil and grease	0.13	0.067
Phenolic compounds (4AAP)	0.0029	0.0014
Total chromium	0.006	0.0035
Hexavalent chromium	0.00052	0.00023
pH	(2)	(2)

¹ In any case in which the applicant can demonstrate that the chloride ion concentration in the effluent exceeds 1,000 mg/l (1,000 ppm), the department may substitute TOC as a parameter in lieu of COD. A TOC effluent limitation shall be based on effluent data from the particular refinery which correlates TOC to BOD. If in the judgment of the department, adequate correlation data are not available, the effluent limitations for TOC shall be established at a ratio of 2.2 to 1 to the applicable effluent limitations for BOD₅.

² Within the range 6.0 to 9.0.

NR 279.23 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:

Pollutant or pollutant property	BAT effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 m ³ of feedstock)	
COD ¹	210.0	109.0
Ammonia as N	18.8	8.5
Sulfide	0.18	0.082
	English units (pounds per 1,000 bbl of feedstock)	
COD ¹	74.0	38.4
Ammonia as N	6.6	3.0
Sulfide	0.065	0.029

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

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

(a) Size factor.

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

(b) Process factor.

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

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

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

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

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

Pollutant or pollutant property and process type	BAT effluent limitations factor	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 m ³ of feedstock)	
Phenolic compounds (4AAP):		
Crude	0.037	0.009
Cracking and coking	0.419	0.102
Asphalt	0.226	0.055
Lube	1.055	0.257
Reforming and alkylation	0.377	0.092
Total chromium:		
Crude	0.03	0.011
Cracking and coking	0.34	0.118
Asphalt	0.183	0.064
Lube	0.855	0.297
Reforming and alkylation	0.305	0.106
Hexavalent chromium:		
Crude	0.0019	0.0009
Cracking and coking	0.0218	0.0098
Asphalt	0.0117	0.0053
Lube	0.0549	0.0248
Reforming and alkylation	0.0196	0.0088

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

Phenolic compounds (4AAP):		
Crude	0.013	0.003
Cracking and coking	0.147	0.036
Asphalt	0.079	0.019
Lube	0.369	0.09
Reforming and alkylation	0.132	0.032
Total chromium:		
Crude	0.011	0.004
Cracking and coking	0.119	0.041
Asphalt	0.064	0.022
Lube	0.299	0.104
Reforming and alkylation	0.107	0.037
Hexavalent chromium:		
Crude	0.0007	0.0003
Cracking and coking	0.0076	0.0034
Asphalt	0.0041	0.0019
Lube	0.0192	0.0087
Reforming and alkylation	0.0089	0.0031

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

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

(5) The quantity and quality of pollutants or pollutant properties controlled by this subsection, attributable to once-through cooling water, are excluded from the discharge allowed by sub. (2). Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg/l.

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

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

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

Pollutant or pollutant property	BAT effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 cubic meters of flow)	
Phenolic compounds (4AAP)	0.35	0.17
Total chromium	0.6	0.21
Hexavalent chromium	0.062	0.028
COD ¹	360.0	180.0
	English units (pounds per 1,000 gallons of flow)	
Phenolic compounds (4AAP)	.0029	.0014
Total chromium	.005	.0018
Hexavalent chromium	.00052	.00023
COD ¹	3.0	1.5

¹ In any case in which the applicant can demonstrate that the chloride ion concentration in the effluent exceeds 1000 mg/l (1000 ppm), the department may substitute TOC as a parameter in lieu of COD. A TOC effluent limitation shall be based on effluent data from the particular refinery which correlates TOC to 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.

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):

Pollutant or pollutant property	BCT effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 m ³ of feedstock)	
BOD ₅	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)

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

(b) Process factor.

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

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

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

(4) The quantity and quality of pollutants or pollutant properties controlled by this subsection, attributable to once-through cooling water, are excluded from the discharge allowed by sub. (2).

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

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

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

Pollutant or pollutant property	BCT effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 cubic meters of flow)	
BOD ₅	48.0	26.0
TSS	33.0	21.0
Oil and grease	15.0	8.0
pH	(1)	(1)

	English units (pounds per 1,000 gallons of flow)	
BOD ₅	0.4	0.22
TSS	0.28	0.18
Oil and grease	0.13	0.067
pH	(1)	(1)

¹ Within the range 6.0 to 9.0.

NR 279.25 PRETREATMENT STANDARDS FOR EXISTING SOURCES (PSES). Except as provided in 40 C.F.R. ss. 403.7 and 403.13 any existing source subject to this subcategory which introduces pollutants into a publicly owned treatment works shall comply with 40 C.F.R. Part 403 and achieve the following pretreatment standards for existing sources (PSES). The following standards apply to the total refinery flow contribution to the POTW:

Pollutant or pollutant property	Pretreatment standards for existing sources -- maximum for any 1 day
	Milligrams per liter (mg/l)
Oil and grease	100.0
Ammonia as N	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).

NR 279.26 STANDARDS OF PERFORMANCE FOR NEW SOURCES (NSPS). (1) Any new source subject to this subcategory shall achieve the following new source performance standards (NSPS):

Pollutant or pollutant property	NSPS effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 m ³ of feedstock)	
BOD ₅	16.3	8.7
TSS	11.3	7.2
COD ¹	118.0	61.0
Oil and grease	4.8	2.6
Phenolic compounds	0.119	0.058
Ammonia as N	18.8	8.6
Sulfide	0.105	0.048
Total chromium	0.24	0.14
Hexavalent chromium	0.02	0.0088
pH	(2)	(2)
	English units (pounds per 1,000 bbl of feedstock)	
BOD ₅	5.8	3.1
TSS	4.0	2.5
COD ¹	41.5	21.0
Oil and grease	1.7	0.93
Phenolic compounds	0.042	0.020
Ammonia as N	6.6	3.0
Sulfide	0.037	0.017
Total chromium	0.084	0.049
Hexavalent chromium	0.0072	0.0032
pH	(2)	(2)

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

² Within the range 6.0 to 9.0.

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

(a) Size factor.

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

(b) Process factor.

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

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

(3) The provisions of s. NR 279.16(c) 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.

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	100.0

Where the discharge to the POTW consists solely of sour waters, the owner or operator has the option of complying with this limit or the daily maximum mass limitation for ammonia set forth in s. NR 279.26(1) and (2).

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

- (a) The standard;
- (b) By the total refinery flow to the POTW; and
- (c) By the ratio of the cooling tower discharge flow to the total refinery flow.

Pollutant or pollutant property	Pretreatment standards for new sources -- maximum for any 1 day
	Milligrams per liter (mg/l)
Total chromium	1.0

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.

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.

NR 279.32 EFFLUENT LIMITATIONS GUIDELINES REPRESENTING THE DEGREE OF EFFLUENT REDUCTION ATTAINABLE BY THE APPLICATION OF THE BEST PRACTICABLE CONTROL TECHNOLOGY CURRENTLY AVAILABLE (BPT). (1) Except as provided in 40

C.F.R. ss. 125.30-125.32 any existing point source subject to this subcategory shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT):

Pollutant or pollutant property	BPT effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 m ³ of feedstock)	
BOD ₅	34.6	18.4
TSS	23.4	14.8
COD ¹	210.0	109.0
Oil and grease	11.1	5.9
Phenolic compounds	0.25	0.12
Ammonia as N	23.4	10.6
Sulfide	0.22	0.099
Total chromium	0.52	0.3
Hexavalent chromium	0.046	0.02
pH	(2)	(2)
	English units (pounds per 1,000 bbl of feedstock)	
BOD ₅	12.1	6.5
TSS	8.3	5.25
COD ¹	74.0	38.4
Oil and grease	3.9	2.1
Phenolic compounds	0.088	0.0425
Ammonia as N	8.25	3.8
Sulfide	0.078	0.035
Total chromium	0.183	0.107
Hexavalent chromium	0.016	0.0072
pH	(2)	(2)

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

² Within the range 6.0 to 9.0.

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

(a) Size factor.

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

(b) Process factor.

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

Note: See the comprehensive example in s. 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 consisted 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	BPT effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 cubic meters of flow)	
BOD ₅	48.0	26.0
TSS	33.0	21.0
COD ¹	360.0	180.0
Oil and grease	15.0	8.0
Phenolic compounds (4AAP)	0.35	0.17
Total chromium	0.73	0.43
Hexavalent chromium	0.062	0.028
pH	(2)	(2)
	English units (pounds per 1,000 gallons of flow)	
BOD ₅	0.4	0.22
TSS	0.28	0.18
COD ¹	3.0	1.5
Oil and grease	0.13	0.067
Phenolic compounds (4AAP)	0.0029	0.0014
Total chromium	0.0060	0.0035
Hexavalent chromium	0.00052	0.00023
pH	(2)	(2)

¹ In any case in which the applicant can demonstrate that the chloride ion concentration in the effluent exceeds 1,000 mg/l (1,000 ppm), the department may substitute TOC as a parameter in lieu of COD. A TOC effluent limitation shall be based on effluent data from the particular refinery which correlates TOC to 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.

² Within the range 6.0 to 9.0.

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):

Pollutant or pollutant property	BAT effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 m ³ of feedstock)	
COD ¹	210.0	109.0
Ammonia as N	23.4	10.6
Sulfide	0.22	0.099
	English units (pounds per 1,000 bbl of flow)	
COD ¹	74.0	38.4
Ammonia as N	8.25	3.8
Sulfide	0.078	0.035

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

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

(a) Size factor.

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

(b) Process factor.

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

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

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

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

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

Pollutant or pollutant property and process type	BAT effluent limitations factor	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 m ³ of feedstock)	
Phenolic compounds (4AAP):		
Crude	0.037	0.009
Cracking and coking	0.419	0.102
Asphalt	0.226	0.055
Lube	1.055	0.257
Reforming and alkylation	0.377	0.092

Total chromium:		
Crude	0.03	0.011
Cracking and coking	0.34	0.118
Asphalt	0.183	0.064
Lube	0.855	0.297
Reforming and alkylation	0.305	0.106
Hexavalent chromium:		
Crude	0.0019	0.0009
Cracking and coking	0.0218	0.0098
Asphalt	0.0117	0.0053
Lube	0.0549	0.0248
Reforming and alkylation	0.0196	0.0088
		English units (pounds per 1,000 bbl of feedstock)
Phenolic compounds (4AAP):		
Crude	0.013	0.003
Cracking and coking	0.147	0.036
Asphalt	0.079	0.019
Lube	0.369	0.09
Reforming and alkylation	0.132	0.032
Total chromium:		
Crude	0.011	0.004
Cracking and coking	0.119	0.041
Asphalt	0.064	0.022
Lube	0.299	0.104
Reforming and alkylation	0.107	0.037
Hexavalent chromium:		
Crude	0.0007	0.0003
Cracking and coking	0.0076	0.0034
Asphalt	0.0041	0.0019
Lube	0.0192	0.0087
Reforming and alkylation	0.0089	0.0031

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

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

(5) The quantity and quality of pollutants or pollutant properties controlled by this subsection, attributable to once-through cooling water, are excluded from the discharge allowed by sub. (2). Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg/l.

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

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

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

Pollutant or pollutant property	BAT effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 cubic meters of flow)	
Phenolic compounds (4AAP)	0.35	0.17
Total chromium	0.6	0.21
Hexavalent chromium	0.062	0.028
COD ¹	360.0	180.0

	English units (pounds per 1,000 gallons of flow)	
Phenolic compounds (4AAP)	.0029	.0014
Total chromium	.005	.0018
Hexavalent chromium	.00052	.00023
COD ¹	3.0	1.5

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.

NR 279.34 EFFLUENT LIMITATIONS GUIDELINES REPRESENTING THE DEGREE OF EFFLUENT REDUCTION ATTAINABLE BY THE APPLICATION OF THE BEST CONVENTIONAL POLLUTANT CONTROL TECHNOLOGY (BCT). (1) Any existing point source subject to this subcategory shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT):

Pollutant or pollutant property	BCT effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 m ³ of feedstock)	
BOD ₅	34.6	18.4
TSS	23.4	14.8
Oil and grease	11.1	5.9
pH	(1)	(1)

	English units (pounds per 1,000 bbl of feedstock)	
BOD ₅	12.1	6.5
TSS	8.3	5.25
Oil and grease	3.9	2.1
pH	(1)	(1)

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

Pollutant or pollutant property	BCT effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 cubic meters of flow)	
BOD ₅	48.0	26.0
TSS	33.0	21.0
Oil and Grease	15.0	8.0
pH	(1)	(1)
	English units (pounds per 1,000 gallons of flow)	
BOD ₅	0.4	0.22
TSS	0.28	0.18
Oil and Grease	0.13	0.067
pH	(1)	(1)

† Within the range 6.0 to 9.0.

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 one day

	Milligrams per liter (mg/l)
Oil and grease	100.0
Ammonia as N	100.0

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).

NR 279.36 STANDARDS OF PERFORMANCE FOR NEW SOURCES (NSPS). (1) Any new source subject to this subcategory shall achieve the following new source performance standards (NSPS):

Pollutant or pollutant property	<u>NSPS effluent limitations</u>	
	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	21.8	11.6
TSS	14.9	9.5
COD ¹	133.0	69.0
Oil and grease	6.6	3.5
Phenolic compounds	0.158	0.077
Ammonia as N	23.4	10.7
Sulfide	0.14	0.063
Total chromium	0.32	0.19
Hexavalent chromium	0.025	0.012
pH	(2)	(2)

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

BOD ₅	7.7	4.1
TSS	5.2	3.3
COD ¹	47.0	24.0
Oil and grease	2.4	1.3
Phenolic compounds	0.056	0.027
Ammonia as N	8.3	3.8
Sulfide	0.05	0.022
Total chromium	0.116	0.068
Hexavalent chromium	0.0096	0.0044
pH	(2)	(2)

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

² Within the range 6.0 to 9.0.

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

(a) Size factor.

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

(b) Process factor.

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

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

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

(4) The quantity and quality of pollutants or pollutant properties controlled by this subsection, attributable to once-through cooling water, are excluded from the discharge allowed by sub. (2). Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg/l.

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NR 279.37 PRETREATMENT STANDARDS FOR NEW SOURCES (PSNS). Except as provided in 40 C.F.R. s. 403.7, any new source subject to this subcategory which introduces pollutants into a publicly owned treatment works shall comply with 40 C.F.R. Part 403 and achieve the following pretreatment standards for new sources (PSNS).

(1) The following standards apply to the total refinery flow contribution to the POTW.

Pollutant or pollutant property	Pretreatment standards for new sources - maximum for any one day
	Milligrams per liter (mg/l)
Oil and grease	100.0
Ammonia as N	100.0

Where the discharge to the POTW consists solely of sour waters, the owner or operator has the option of complying with this limit or the daily maximum mass limitation for ammonia set forth in s. NR 279.36(1) and (2).

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

- (a) The standard;
- (b) By the total refinery flow to the POTW; and
- (c) By the ratio of the cooling tower discharge flow to the total refinery flow.

Pollutant or pollutant property	Pretreatment standards for new sources - maximum for any one day
	Milligrams per liter (mg/l)
Total chromium	1.0

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.

NR 279.42 EFFLUENT LIMITATIONS GUIDELINES REPRESENTING THE DEGREE OF EFFLUENT REDUCTION ATTAINABLE BY THE APPLICATION OF THE BEST PRACTICABLE CONTROL TECHNOLOGY CURRENTLY AVAILABLE (BPT). (1) Except as provided in 40 C.F.R. ss. 125.30-125.32 any existing point source subject to this subcategory shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT):

Pollutant or pollutant property	BPT effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 m ³ of feedstock)	
BOD ₅	50.6	25.8
TSS	35.6	22.7
COD ¹	360.0	187.0
Oil and grease	16.2	8.5
Phenolic compounds	0.38	0.184
Ammonia as N	23.4	10.6
Sulfide	0.33	0.150
Total chromium	0.77	0.45
Hexavalent chromium	0.068	0.03
pH	(2)	(2)
	English units (pounds per 1,000 bbl of feedstock)	
BOD ₅	17.9	9.1
TSS	12.5	8.0
COD ¹	127.0	66.0
Oil and grease	5.7	3.0
Phenolic compounds	0.133	0.065
Ammonia as N	8.3	3.8
Sulfide	0.118	0.053
Total chromium	0.273	0.16
Hexavalent chromium	0.024	0.011
pH	(2)	(2)

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

² Within the range 6.0 to 9.0.

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

(a) Size factor.

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

(b) Process factor.

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

(c) Example of the application of the above factors. Example--Lube refinery 125,000 bbl per steam day throughput.

Calculations of the Process
Configuration

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

Process	Capacity (1,000 bbl per stream day)	Capacity relative to throughput	Weighting factor	Processing configuration
Crude:				
Atm	125.0	1.0		
Vacuum	60.0	0.48		
Desalting	125.0	1.0		
Total		2.48	x1	=2.48
Cracking:				
FCC	41.0	0.328		
Hydro-				
cracking	20.0	0.16		
Total		0.488	x6	=2.93

Lubes	5.3	0.042		
	4.0	0.032		
	4.9	0.039		
Total		0.113	x13	=1.47
Asphalt	4.0	0.032	x12	=0.88
Refinery				
process				
configur-				
ation				=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 x 0.88 x 0.97 = 15.3 lb. per 1,000 bbl of feedstock.

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

(4) The quantity and quality of pollutants or pollutant properties controlled by this subsection, attributable to once-through cooling water, are excluded from the discharge allowed by sub. (2). Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg/l.

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

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

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

Pollutant or pollutant property	BPT effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 cubic meters of flow)	
BOD ₅	48.0	26.0
TSS	33.0	21.0
COD ¹	360.0	180.0
Oil and grease	15.0	8.0
Phenolic compounds (4AAP)	0.35	0.17
Total chromium	0.73	0.43
Hexavalent chromium	0.062	0.028
pH	(2)	(2)

	English units (pounds per 1,000 gallons of flow)	
BOD ₅	0.4	0.22
TSS	0.28	0.18
COD ¹	3.0	1.5
Oil and grease	0.13	0.067
Phenolic compounds (4AAP)	0.0029	0.0014
Total chromium	0.006	0.0035
Hexavalent chromium	0.00052	0.00023
pH	(2)	(2)

¹ In any case in which the applicant can demonstrate that the chloride ion concentration in the effluent exceeds 1,000 mg/l (1,000 ppm), the department may substitute TOC as a parameter in lieu of COD. A TOC effluent limitation shall be based on effluent data from the particular refinery which correlates TOC to BOD. If in the judgment of the department, adequate correlation data are not available, the effluent limitations for TOC shall be established at a ratio of 2.2 to 1 to the applicable effluent limitations for BOD₅.

² Within the range 6.0 to 9.0.

NR 279.43 EFFLUENT LIMITATIONS GUIDELINES REPRESENTING THE DEGREE OF EFFLUENT REDUCTION ATTAINABLE BY THE APPLICATION OF THE BEST AVAILABLE TECHNOLOGY ECONOMICALLY ACHIEVABLE (BAT). (1) Except as provided in 40 C.F.R. ss. 125.30-125.32, any existing point source subject to this subcategory shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT):

Pollutant or pollutant property	BAT effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 m ³ of feedstock)	
COD ¹	360.0	187.0
Ammonia as N	23.4	10.6
Sulfide	0.33	0.15
	English units (pounds per 1,000 bbl of feedstock)	
COD ¹	127.0	66.0
Ammonia as N	8.3	3.8
Sulfide	0.118	0.053

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

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

(a) Size factor.

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

(b) Process factor.

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

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

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

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

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

Pollutant or pollutant property and process type	BAT effluent limitation factor	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 m ³ of feedstock)	
Phenolic compounds (4AAP):		
Crude	0.037	0.009
Cracking and coking	0.419	0.102
Asphalt	0.226	0.055
Lube	1.055	0.257
Reforming and alkylation	0.377	0.092

Total chromium:		
Crude	0.03	0.011
Cracking and coking	0.34	0.118
Asphalt	0.183	0.064
Lube	0.855	0.297
Reforming and alkylation	0.305	0.106
Hexavalent chromium		
Crude	0.0019	0.0009
Cracking and coking	0.0218	0.0096
Asphalt	0.0117	0.0053
Lube	0.0549	0.0248
Reforming and alkylation	0.0196	0.0088
English units (pounds per 1,000 bbl of feedstock)		
Phenolic compounds (4AAP):		
Crude	0.013	0.003
Cracking and coking	0.147	0.036
Asphalt	0.079	0.019
Lube	0.369	0.09
Reforming and alkylation	0.132	0.032
Total chromium:		
Crude	0.011	0.004
Cracking and coking	0.119	0.041
Asphalt	0.064	0.022
Lube	0.299	0.104
Reforming and alkylation	0.107	0.037
Hexavalent chromium		
Crude	0.0007	0.0003
Cracking and coking	0.0076	0.0034
Asphalt	0.0041	0.0019
Lube	0.0192	0.0087
Reforming and alkylation	0.0069	0.0031

(b) Example application of effluent limitations guidelines as applicable to phenolic compounds, hexavalent chromium and total chromium. The following example presents the derivation of a BAT phenolic compounds (4AAP) effluent limitation (30 day average) for a petroleum refinery permit. This methodology is also applicable to hexavalent chromium and total chromium.

Refinery process	Process feedstock rate 1,000 bbl/day
1. Atmospheric 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: $-30 = \text{day average phenolic compounds (4AAP) discharge, lb/day}$
 $(0.003)(225) + (0.036)(45) + (0.019)(5) + (0.09)(3) + (0.032)(10) + 2.98 \text{ lb/day.}$

(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:

Pollutant or pollutant property	BAT effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 cubic meters of flow)	
Phenolic compounds (4AAP)	0.35	0.17
Total chromium	0.6	0.21
Hexavalent chromium	0.062	0.028
COD ¹	360.0	180.0
	English units (pounds per 1,000 gallons of flow)	
Phenolic compounds (4AAP)	.0029	.0014
Total chromium	.005	.0018
Hexavalent chromium	.00052	.00023
COD ¹	3.0	1.5

¹ In any case in which the applicant can demonstrate that the chloride ion concentration in the effluent exceeds 1000 mg/l (1000 ppm), the department may substitute TOC as a parameter in lieu of COD. A TOC effluent limitation shall be based on effluent data from the particular refinery which correlates TOC to 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.

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):

Pollutant or pollutant property	BCT effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 m ³ of feedstock)	
BOD ₅	50.6	25.8
TSS	35.6	22.7
Oil and grease	16.2	8.5
pH	(1)	(1)
	English units (pounds per 1,000 bbl of feedstock)	
BOD ₅	17.9	9.1
TSS	12.5	8.0
Oil and grease	5.7	3.0
pH	(1)	(1)

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

(b) Process factor.

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

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

(4) The quantity and quality of pollutants or pollutant properties controlled by this subsection, attributable to once-through cooling water, are excluded from the discharge allowed by sub. (2).

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

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

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

Pollutant or pollutant property	BCT effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 cubic meters of flow)	
BOD ₅	48.0	26.0
TSS	33.0	21.0
Oil and grease	15.0	8.0
pH	(1)	(1)

	English units (pounds per 1,000 gallons of flow)	
BOD ₅	0.4	0.22
TSS	0.28	0.18
Oil and grease	0.13	0.067
pH	(1)	(1)

¹ Within the range 6.0 to 9.0.

NR 279.45 PRETREATMENT STANDARDS FOR EXISTING SOURCES (PSES). Except as provided in 40 C.F.R. ss. 403.7 and 403.13 any existing source subject to this subcategory which introduces pollutants into a publicly owned treatment works shall comply with 40 C.F.R. Part 403 and achieve the following pretreatment standards for existing sources (PSES). The following standards apply to the total refinery flow contribution to the POTW:

Pollutant or pollutant property	Pretreatment standards for existing sources - maximum for any one day
	Milligrams per liter (mg/l)
Oil and grease	100.0
Ammonia as N	100.0

¹ Where the discharge to the POTW consists solely of sour waters, the owner or operator has the option of complying with this limit or the daily maximum mass limitation for ammonia set forth in s. NR 279.43(1) and (2).

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):

Pollutant or pollutant property	NSPS effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 m ³ of feedstock)	
BOD ₅	34.6	18.4
TSS	23.4	14.9
COD ¹	245.0	126.0
Oil and grease	10.5	5.6
Phenolic compounds	0.25	0.12
Ammonia as N	23.4	10.7
Sulfide	0.22	0.1
Total chromium	0.52	0.31
Hexavalent chromium	0.046	0.021
pH	(2)	(2)
	English units (pounds per 1,000 bbl of feedstock)	
BOD ₅	12.2	6.5
TSS	8.3	5.3
COD ¹	87.0	45.0
Oil and grease	3.8	2.0
Phenolic compounds	0.088	0.043
Ammonia as N	8.3	3.8
Sulfide	0.078	0.035
Total chromium	0.18	0.105
Hexavalent chromium	0.022	0.0072
pH	(2)	(2)

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

² Within the range 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.

NR 279.47 PRETREATMENT STANDARDS FOR NEW SOURCES (PSNS). Except as provided in 40 C.F.R. s. 403.7, any new source subject to this subcategory which introduces pollutants into a publicly owned treatment works shall comply with 40 C.F.R. Part 403 and achieve the following pretreatment standards for new sources (PSNS).

(1) The following standards apply to the total refinery flow contribution to the POTW.

Pollutant or pollutant property	Pretreatment standards for existing sources - maximum for any one day
	Milligrams per liter (mg/l)
Oil and grease	100.0
Ammonia as N	100.0

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 one day
Total chromium	Milligrams per liter (mg/l) 1.0

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.

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):

Pollutant or pollutant property	BPT effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 m ³ of feedstock)	
BOD ₅	54.4	28.9
TSS	37.3	23.7
COD ¹	388.0	198.0
Oil and grease	17.1	9.1
Phenolic compounds	0.4	0.192
Ammonia as N	23.4	10.6
Sulfide	0.35	0.158
Total chromium	0.82	0.48
Hexavalent chromium	0.068	0.032
pH	(2)	(2)
	English units (pounds per 1,000 bbl of feedstock)	
BOD ₅	19.2	10.2
TSS	13.2	8.4
COD ¹	136.0	70.0
Oil and grease	6.0	3.2
Phenolic compounds	0.14	0.068
Ammonia as N	8.3	3.8
Sulfide	0.124	0.056
Total chromium	0.29	0.17
Hexavalent chromium	0.025	0.011
pH	(2)	(2)

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

² Within the range 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. 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 consisted solely of contaminated runoff which exceeds 15 mg/l oil and grease or 110 mg/l TOC is not commingled or treated with any other type of wastewater, the quantity of pollutants discharged may not exceed the quantity determined by multiplying the flow of contaminated runoff as determined by the department times the concentrations listed in the following table:

Pollutant or pollutant property	BPT effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 cubic meters of flow)	
BOD ₅	48.0	26.0
TSS	33.0	21.0
COD ¹	360.0	180.0
Oil and grease	15.0	8.0
Phenolic compounds (4AAP)	0.35	0.17
Total chromium	0.73	0.43
Hexavalent chromium	0.062	0.028
pH	(2)	(2)

	English units (pounds per 1,000 gallons of flow)	
BOD ₅	0.4	0.22
TSS	0.28	0.18
COD ¹	3.0	1.5
Oil and grease	0.13	0.067
Phenolic compounds (4AAP)	0.0029	0.0014
Total chromium	0.006	0.0035
Hexavalent chromium	0.00052	0.00023
pH	(2)	(2)

¹ In any case in which the applicant can demonstrate that the chloride ion concentration in the effluent exceeds 1,000 mg/l (1,000 ppm), the department may substitute TOC as a parameter in lieu of COD. A TOC effluent limitation shall be based on effluent data from the particular refinery which correlates TOC to BOD. If in the judgment of the department, adequate correlation data are not available, the effluent limitations for TOC shall be established at a ratio of 2.2 to 1 to the applicable effluent limitations for BOD₅.

² Within the range 6.0 to 9.0.

NR 279.53 EFFLUENT LIMITATIONS GUIDELINES REPRESENTING THE DEGREE OF EFFLUENT REDUCTION ATTAINABLE BY THE APPLICATION OF THE BEST AVAILABLE TECHNOLOGY ECONOMICALLY ACHIEVABLE (BAT). (1) Except as provided in 40 C.F.R. ss. 125.30-125.32, any existing point source subject to this subcategory shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT):

BAT effluent limitations

Pollutant or pollutant property	BAT effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 m ³ of feedstock)	
COD ¹	388.0	198.0
Ammonia as N	23.4	10.6
Sulfide	0.35	0.158
	English units (pounds per 1,000 bbl of feedstock)	
COD ¹	136.0	70.0
Ammonia as N	8.3	3.8
Sulfide	0.124	0.056

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

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

(a) Size factor.

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

(b) Process factor.

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

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

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

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

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

BAT effluent limitations
factor

Pollutant or pollutant property and process type	BAT effluent limitations factor	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 m ³ of feedstock)	
Phenolic compounds (4AAP):		
Crude	0.037	0.009
Cracking and coking	0.419	0.102
Asphalt	0.226	0.055
Lube	1.055	0.257
Reforming and alkylation	0.377	0.092
Total chromium:		
Crude	0.03	0.011
Cracking and coking	0.34	0.118
Asphalt	0.183	0.064
Lube	0.855	0.297
Reforming and alkylation	0.305	0.106
Hexavalent chromium:		
Crude	0.0019	0.0009
Cracking and coking	0.0218	0.0098
Asphalt	0.0117	0.0053
Lube	0.0549	0.0248
Reforming and alkylation	0.0196	0.0088

	English units (pounds per 1,000 bbl of feedstock)	
Phenolic compounds (4AAP):		
Crude	0.013	0.003
Cracking and coking	0.147	0.036
Asphalt	0.079	0.019
Lube	0.369	0.09
Reforming and alkylation	0.132	0.032
Total chromium:		
Crude	0.011	0.004
Cracking and coking	0.119	0.041
Asphalt	0.064	0.022
Lube	0.299	0.104
Reforming and alkylation	0.107	0.037
Hexavalent chromium:		
Crude	0.0007	0.0003
Cracking and coking	0.0076	0.0034
Asphalt	0.0041	0.0019
Lube	0.0192	0.0087
Reforming and alkylation	0.0089	0.0031

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

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

(5) The quantity and quality of pollutants or pollutant properties controlled by this subsection, attributable to once-through cooling water, are excluded from the discharge allowed by sub. (2). Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg/l.

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

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

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

Pollutant or pollutant property	BAT effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 cubic meters of flow)	
Phenolic compounds (4AAP)	0.35	0.17
Total chromium	0.6	0.21
Hexavalent chromium	0.062	0.028
COD ¹	360.0	180.0
	English units (pounds per 1,000 gallons of flow)	
Phenolic compounds (4AAP)	.0029	.0014
Total chromium	.005	.0018
Hexavalent chromium	.00052	.00023
COD ¹	3.0	1.5

¹ In any case in which the applicant can demonstrate that the chloride ion concentration in the effluent exceeds 1000 mg/l (1000 ppm), the department may substitute TOC as a parameter in lieu of COD. A TOC effluent limitation shall be based on effluent data from the particular refinery which correlates TOC to 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.

NR 279.54 EFFLUENT LIMITATIONS GUIDELINES REPRESENTING THE DEGREE OF EFFLUENT REDUCTION ATTAINABLE BY THE APPLICATION OF THE BEST CONVENTIONAL POLLUTANT CONTROL TECHNOLOGY (BCT). (1) Any existing point source subject to this subcategory shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT):

Pollutant or pollutant property	BCT effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 m ³ of feedstock)	
BOD ₅	54.4	28.9
TSS	37.3	23.7
Oil and grease	17.1	9.1
pH	(1)	(1)
	English units (pounds per 1,000 bbl of feedstock)	
BOD ₅	19.2	10.2
TSS	13.2	8.4
Oil and grease	6.0	3.2
pH	(1)	(1)
† 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 barrels 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. 279.42(2)(c).

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

(4) The quantity and quality of pollutants or pollutant properties controlled by this subsection, attributable to once-through cooling water, are excluded from the discharge allowed by sub. (2).

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

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

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

Pollutant or pollutant property	BCT effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 m ³ feedstock)	
BOD ₅	48.0	26.0
TSS	33.0	21.0
Oil and grease	15.0	8.0
pH	(1)	(1)

	English units (pounds per 1,000 gallons of flow)	
BOD ₅	0.4	0.22
TSS	0.28	0.18
Oil and grease	0.13	0.067
pH	(1)	(1)

† Within the range 6.0 to 9.0.

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 one day
	Milligrams per liter (mg/l)
Oil and grease	100.0
Ammonia	100.0

† 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).

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):

Pollutant or pollutant property	NSPS effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Metric units (kilograms per 1,000 m ³ of feedstock)	
BOD ₅	41.6	22.1
TSS	28.1	17.9
COD ¹	295.0	152.0
Oil and grease	12.6	6.7
Phenolic compounds	0.3	0.14
Ammonia as N	23.4	10.7
Sulfide	0.26	0.12
Total chromium	0.64	0.37
Hexavalent chromium	0.052	0.024
pH	(2)	(2)
	English units (pounds per 1,000 bbl of feedstock)	
BOD ₅	14.7	7.8
TSS	9.9	6.3
COD ¹	104.0	54.0
Oil and grease	4.5	2.4
Phenolic compounds	0.105	0.051
Ammonia as N	8.3	3.8
Sulfide	0.093	0.042
Total chromium	0.22	0.13
Hexavalent chromium	0.019	0.0084
pH	(2)	(2)

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

² Within the range 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. 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.

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 new sources - maximum for any one day
	Milligrams per liter (mg/l)
Oil and grease	100.0
Ammonia as N	100.0

¹ Where the discharge to the POTW consists solely of sour waters, the owner or operator has the option of complying with this limit or the daily maximum mass limitation for ammonia set forth in s. NR 279.56(1) and (2).

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

- (a) The standards;
- (b) By the total refinery flow to the POTW; and
- (c) By the ratio of the cooling tower discharge flow to the total refinery flow.

Pollutant or pollutant property	Pretreatment standards for new sources - maximum for any one day
Total chromium	Milligrams per liter (mg/l) 1.0

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:

<u>Code of Federal Regulations</u>	<u>Corresponding state code section</u>
40 C.F.R. Part 419.ch. NR 279
40 C.F.R. s. 125.30 - 125.32.s. NR 211.14, s. 147.04(3), Stats.
40 C.F.R. Part 401.chs. NR 205, 215, 219
40 C.F.R. Part 403.chs. NR 211
40 C.F.R. s. 403.7.s. NR 211.13
40 C.F.R. s. 403.13s. NR 211.14

Appendix A--Processes Included in the Determination of BAT Effluent Limitations for Total Chromium, Hexavalent Chromium, and Phenolic Compounds (4AAP)

Crude Processes:

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

Cracking and Coking Processes:

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

Asphalt Processes:

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

Lube Processes:

21. Hydrofining, Hydrofinishing, Lube Hydrofining
22. White Oil Manufacture
23. Propane Dewaxing, Propane Deasphalting, Propane Fractioning. Propane

Deresining

24. Duo Sol, Solvent Treating, Solvent Extraction, Duotreating, Solvent Dewaxing, Solvent Deasphalting

25. Lube Vac Twr, Oil Fractionation, Batch Still (Naphtha Strip), Bright
Stock Treating

26. Centrifuge & Chilling

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

28. Deoiling (wax)

29. Naphthenic Lubes Production

30. SO₂ Extraction

34. Wax Pressing

The foregoing rules were approved and adopted by the State of Wisconsin
Natural Resources Board on May 29, 1986.

The rules contained herein shall take effect as provided in s.
227. ~~22~~(1)(intro.), Stats.

Dated at Madison, Wisconsin July 18, 1986

STATE OF WISCONSIN DEPARTMENT OF NATURAL RESOURCES

By Carroll D. Besadny
Carroll D. Besadny, Secretary

(SEAL)

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