

## SECTION XI

### NEW SOURCE PERFORMANCE STANDARDS

Recommended effluent limitations for new source performance standards are based upon the application of BPCTCA control technology to the waste water flows used as the basis for BATEA effluent limitations. The proposed BADT effluent limitations are shown in Tables 1-6.

The refining technology available today does not call for major innovations in refining processes. Basically, BADT refining technology consists of the same fundamental processes which are already in practice, with few modifications and additions. However, a major design criterion for new refinery capacity is reuse/ recycle of water streams to the greatest extent possible, in order to minimize discharges to waste water treatment facilities. Consequently, the water flow on which new source performance standards were based is identical to the best available technology economically achievable flow, which reflects the best water usage as demonstrated in the petroleum refining industry. These flows are shown in Table 52.

It should be clearly understood that no recommendations have been made, nor are any implied, regarding the substitution of processes which produce a lower raw waste load for others with higher raw waste load.

This is based on the consideration that the choice of a particular commercial route is governed largely by the availability of feedstocks and on the conditions in the product markets. Companies produce a given mix of products based on their particular marketing and feedstock position within the industry. The substitution of a cleaner process may be possible for new producers from a technical point of view, but completely impossible based on limited availability of the required alternative feedstocks or on the lack of viable markets for new co-products.

The waste water treatment technology recommended for BADT effluent limitations is the same as called for by BPCTCA and does not include physical - chemical treatment, because that technology has not been sufficiently demonstrated by the petroleum refining industry.

#### Procedure for Development of BADT Effluent Limitations

The effluent limitations proposed for BADT technology are based on the concentrations considered achievable by BPCTCA and the flows from BATEA. The daily annual average effluent limitations thus determined are contained in Table 56.

TABLE 56  
BADT

NEW SOURCE PERFORMANCE STANDARDS FOR THE PETROLEUM REFINING INDUSTRY

Annual Daily Kilograms of Pollutants/1000 Cubic Meters of Feedstock (1) Per Stream Day  
(Annual Average Daily Pounds of Pollutants/1000 BBL of Feedstock Per Stream Day)

Refinery Subcategory	BOD5	COD	TOC	Total Suspended Solids	Oil & Grease	Phenolic Compounds	Ammonia(N)	Sulfide	Total Chromium	Hexavalent Chromium
Topping	3.7(1.3)	19.8(7.0)	8.2(2.9)	2.5(0.88)	1.2(0.44)	0.025(0.0088)	0.85(0.30)	0.025(0.0088)	0.062(0.022)	0.0012(0.00044)
Cracking	5.1(1.8)	38 (13.4)	11.3(4.0)	3.4(1.2)	1.6(0.58)	0.034(0.012)	5.7 (2.0)	0.034(0.012)	0.082(0.029)	0.0016(0.00058)
176 Petrochemical	6.8(2.4)	43 (15.2)	15.0(5.3)	4.5(1.6)	2.2(0.79)	0.045(0.016)	7.1 (2.5)	0.045(0.016)	0.11 (0.040)	0.0022(0.00079)
Lube	10.8(3.8)	79 (28.0)	24 (8.4)	7.1(2.5)	3.5(1.25)	0.071(0.025)	7.1 (2.5)	0.071(0.025)	0.18(0.062)	0.0037(0.0013)
Integrated	13.0(4.6)	95 (33.5)	29 (10.1)	8.5(3.0)	4.2(1.5)	0.085(0.030)	7.1 (2.5)	0.085(0.030)	0.22(0.076)	0.0042(0.0015)
Runoff(2)	0.015(0.125)	0.12(1.0)	0.033(0.275)	0.010(0.083)	0.0050(0.042)	--	--	--	--	--
Ballast(3)	0.015(0.125)	0.15(1.25)	0.033(0.275)	0.010(0.083)	0.0050(0.042)	--	--	--	--	--

(1) Feedstock - Crude oil and/or natural gas liquids.

(2) The additional allocation being allowed for contaminated storm runoff flow, kg/1000 liters (lb/1000 gallons), shall be based solely on that storm flow which passes through the treatment system. All additional storm runoff, that has been segregated from the main waste stream, shall not exceed a TOC concentration of 35mg/l or Oil & Grease concentration of 15 mg/l when discharged.

(3) This is an additional allocation, based on ballast water intake - kilograms per 1000 liters (pounds per 1000 gallons).

## Variability Allowance for Treatment Plant Performance

The guideline numbers presented in Tables 1-6 have taken into consideration the variability factors, as in BPCTCA. Since the treatment technology and process technology for BADT are the same as BPCTCA, the ratios established for BPCTCA have been used in BADT.

TABLE 57

## METRIC UNITS

## CONVERSION TABLE

MULTIPLY (ENGLISH UNITS)		by	TO OBTAIN (METRIC UNITS)	
ENGLISH UNIT	ABBREVIATION	CONVERSION	ABBREVIATION	METRIC UNIT
acre	ac	0.405	ha	hectares
acre - feet	ac ft	1233.5	cu m	cubic meters
British Thermal Unit	BTU	0.252	kg cal	kilogram - calories
British Thermal Unit/pound	BTU/lb	0.555	kg cal/kg	kilogram calories/kilogram
cubic feet/minute	cfm	0.028	cu m/min	cubic meters/minute
cubic feet/second	cfs	1.7	cu m/min	cubic meters/minute
cubic feet	cu ft	0.028	cu m	cubic meters
cubic feet	cu ft	28.32	l	liters
cubic inches	cu in	16.39	cu cm	cubic centimeters
degree Fahrenheit	F°	0.555(°F-32)*	°C	degree Centigrade
feet	ft	0.3048	m	meters
gallon	gal	3.785	l	liters
gallon/minute	gpm	0.0631	l/sec	liters/second
horsepower	hp	0.7457	kw	kilowatts
inches	in	2.54	cm	centimeters
inches of mercury	in Hg	0.03342	atm	atmospheres
pounds	lb	0.454	kg	kilograms
million gallons/day	mgd	3,785	cu m/day	cubic meters/day
mile	mi	1.609	km	kilometer
pound/square inch (gauge)	psig	(0.06805 psig +1)*	atm	atmospheres (absolute)
square feet	sq ft	0.0929	sq m	square meters
square inches	sq in	6.452	sq cm	square centimeters
tons (short)	t	0.907	kkg	metric tons (1000 kilograms)
yard	y	0.9144	m	meters

\* Actual conversion, not a multiplier