

EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

Permit Nos. 36644, PSD-TX-903, and N-007

This table lists the maximum allowable emission rates and all sources of air contaminants on the applicant's property covered by this permit. The emission rates shown are those derived from information submitted as part of the application for permit and are the maximum rates allowed for these facilities. Any proposed increase in emission rates may require an application for a modification of the facilities covered by this permit.

AIR CONTAMINANTS DATA

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates *	
			lb/hr	TPY
N-1	Recycle Ethane Cracking Furnace	NO _x (7)	24.16	79.37
		SO ₂ (7)	1.12	4.89
		CO (7)	23.25	101.85
		PM ₁₀ (7)	1.51	6.61
		VOC (7)	0.57	2.51
N-2	Fresh Feed Cracking Heater	NO _x (7)	35.34	116.08
		SO ₂ (7)	1.61	7.07
		CO (7)	34.01	148.97
		PM ₁₀ (7)	2.21	9.67
		VOC (7)	0.84	3.68
N-3	Fresh Feed Cracking Heater	NO _x (7)	35.34	116.08
		SO ₂ (7)	1.61	7.07
		CO (7)	34.01	148.97
		PM ₁₀ (7)	2.21	9.67
		VOC (7)	0.84	3.68
N-4	Fresh Feed Cracking Heater	NO _x (7)	35.34	116.08
		SO ₂ (7)	1.61	7.07
		CO (7)	34.01	148.97
		PM ₁₀ (7)	2.21	9.67
		VOC (7)	0.84	3.68
N-5	Fresh Feed Cracking Heater	NO _x (7)	35.34	116.08
		SO ₂ (7)	1.61	7.07
		CO (7)	34.01	148.97
		PM ₁₀ (7)	2.21	9.67
		VOC (7)	0.84	3.68

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Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates *	
			lb/hr	TPY
N-6	Fresh Feed Cracking Heater	NO _x (7)	35.34	116.08
		SO ₂ (7)	1.61	7.07
		CO (7)	34.01	148.97
		PM ₁₀ (7)	2.21	9.67
		VOC (7)	0.84	3.68
N-7	Fresh Feed Cracking Heater	NO _x (7)	35.34	116.08
		SO ₂ (7)	1.61	7.07
		CO (7)	34.01	148.97
		PM ₁₀ (7)	2.21	9.67
		VOC (7)	0.84	3.68
N-8	Fresh Feed Cracking Heater	NO _x (7)	35.34	116.08
		SO ₂ (7)	1.61	7.07
		CO (7)	34.01	148.97
		PM ₁₀ (7)	2.21	9.67
		VOC (7)	0.84	3.68
N-9	Fresh Feed Cracking Heater	NO _x (7)	35.34	116.08
		SO ₂ (7)	1.61	7.07
		CO (7)	34.01	148.97
		PM ₁₀ (7)	2.21	9.67
		VOC (7)	0.84	3.68
N-10	Catalyst Regeneration Effluent	VOC (7)	<0.001	<0.001
N-11	Reactor Regeneration Effluent	VOC (7)	<0.001	<0.001
N-12	DP Reactor Feed Heater	NO _x (7)	5.01	13.71
		SO ₂ (7)	0.22	0.95
		CO (7)	0.69	3.02
		PM ₁₀ (7)	0.38	1.64
		VOC (7)	0.17	0.74

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Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates *	
			lb/hr	TPY
N-13	DP Reactor Regeneration Heater	NO _x (7)	1.73	1.42
		SO ₂ (7)	0.07	0.10
		CO (7)	0.24	0.31
		PM ₁₀ (7)	0.13	0.17
		VOC (7)	0.06	0.08
N-14	Supplemental Boiler	NO _x (7)	13.65	16.20
		SO ₂ (7)	0.61	0.73
		CO (7)	15.70	18.63
		PM ₁₀ (7)	1.59	1.89
		VOC (7)	1.59	1.89
N-15	Flare	VOC (7)	5.23	5.02
		NO _x (7)	0.45	1.27
		CO (7)	3.30	9.21
		SO ₂ (7)	0.03	0.14
N-18	Decoking Drum	CO (7)	720.00	27.88
		PM ₁₀ (7)	78.73	3.04
N-19	Thermal Oxidizer	VOC (7)	0.024	0.107
		NO _x (7)	0.24	0.88
		CO (7)	0.51	1.86
		SO ₂ (7)	0.08	0.28
		PM ₁₀ (7)	0.04	0.13
N-20A	CTG HRSG Unit 1 GE Frame 6B 310.4 MMBtu/hr Duct Burner	NO _x (7)	44.94	102.62
		SO ₂ (7)	2.27	6.50
		CO (7)	56.94	165.18
		VOC (7)	4.21	11.65
		PM ₁₀ (7)	5.55	19.31

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N-20B	CTG HRSG Unit 2 GE Frame 6B 310.4 MMBtu/hr Duct Burner (with SCR)	NO _x (7)	26.96	61.57
		SO ₂ (7)	2.27	6.50
		CO (7)	56.94	165.18
		VOC (7)	4.21	11.65
		PM ₁₀ (7)	5.55	19.31
		NH ₃	7.94	22.57
N-21A	Fire Pump Diesel Engine (6)	VOC (7)	1.26	0.016
		NO _x (7)	15.81	0.21
		CO (7)	3.41	0.04
		SO ₂ (7)	1.05	0.014
		PM ₁₀ (7)	1.12	0.015
N-21B	Fire Pump Diesel Engine (6)	VOC (7)	1.26	0.016
		NO _x (7)	15.81	0.21
		CO (7)	3.41	0.04
		SO ₂ (7)	1.05	0.014
		PM ₁₀ (7)	1.12	0.015
TK-2501	IFR Spent Caustic	VOC (7)	0.26	1.03
TK-8001	IFR WW Equalization	VOC (7)	0.37	0.66
TK-8101	EFR Contaminated Stormwater	VOC (7)	<0.001	<0.001
TK-7702	Sulfuric Acid Tank	H ₂ SO ₄	<0.001	<0.001
		SO ₃	<0.001	<0.001
F-1	Fugitives (4)	VOC (7)	2.06	9.10
F-2	Cooling Tower	VOC (5) (7)	12.6	55.19
		Benzene	0.45	1.99
		PM ₁₀ (7)	1.9	2.76
F-4	Benzene/Toluene Process	VOC (7)	0.25	1.12

(1) Emission point identification - either specific equipment designation or emission point number

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from plot plan.

- (2) Specific point source name. For fugitive sources use area name or fugitive source name.
- (3) VOC - volatile organic compounds as defined in 30 Texas Administrative Code Section 101.1
NO_x - total oxides of nitrogen
SO₂ - sulfur dioxide
PM₁₀ - particulate matter (PM) equal to or less than 10 microns in diameter. Where PM is not listed, it shall be assumed that no particulate matter greater than 10 microns is emitted.
CO - carbon monoxide
H₂SO₄ - sulfuric acid
SO₃ - sulfur trioxide
NH₃ - ammonia
- (4) Fugitive emissions are an estimate only and should not be considered as a maximum allowable emission rate.
- (5) The VOC emissions rates from the cooling tower are 12.6 pounds per hour and 55.19 tons per year including benzene. The VOC emission rates are for total VOC.
- (6) Emissions from the Fire Pump Diesel Engines are based on 26 hours per year operation. Non-emergency fire pump operations shall only occur between the hours of 8:00 a.m. and 5:00 p.m. (one engine at any one time). For integrity testing of the firewater system, the diesel engines may extend hours of operation until 8:00 p.m. during the initial construction and commissioning of the Steam Cracker. Upon start-up of the Steam Cracker, the allowable diesel engine operations will revert to the hours of 8:00 a.m. to 5:00 p.m.
- (7) These emissions are permitted under PSD or Nonattainment review in addition to State.
- * Emission rates are based on and the facilities are limited by the following maximum operating schedule:

_____Hrs/day _____Days/week _____Weeks/year or 8,760 Hrs/year

Dated June 22, 2001