EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

Permit Numbers 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

EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

AIR CONTAMINANTS DATA

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
N-13	DP Reactor Regeneration	NO_x (7)	1.73	1.42

EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

AIR CONTAMINANTS DATA

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates * lb/hr	TPY
	Heater	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	13.6	20.1
		SO_2	1.24	0.92
		CO	15.6	23.2
		PM_{10}	1.58	2.35
		VOC	1.58	2.35
N-20A	GTG HRSG Unit 1	NO_x	15.3	
	GE Frame 6B	SO_2	4.46	
	310.4 MMBtu/hr	CO	53.9	
	Duct Burner (with SCR)	VOC	3.85	
		PM_{10}	5.48	
		NH_3	7.61	30.2
N-20B	GTG HRSG Unit 2	NO_x	24.1	
	GE Frame 6B	SO_2	4.46	
	310.4 MMBtu/hr	CO	53.9	
	Duct Burner (with SCR)	VOC	3.85	
		PM_{10}	5.48	
		NH_3	7.61	30.2

Emission Points N-14, N-20A, and N-20B are subject to the following combined annual emission cap for the specified pollutants:

N-14, N-20A, N-20B	Annual Emission Cap	NO_x		179
		CO		429
		VOC		33
		PM_{10}		49
		SO_2	18.5	
N-15	Flare	VOC (7)	5.16	5.20
		NO_x (7)	0.49	1.42
		CO (7)	3.52	

EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

AIR CONTAMINANTS DATA

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates * lb/hr	TPY
		SO_2 (7)	0.04	0.19
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)	0.21	0.77
		SO_2 (7)	0.08	0.28
		PM_{10} (7)	0.04	0.13
N-21A	Fire Pump Diesel Engine (6)	VOC (7)	1.26	0.098
		NO_x (7)	15.81	1.23
		CO (7)	3.41	0.27
		SO_2 (7)	1.05	0.082
		PM_{10} (7)	1.12	0.088
N-21B	Fire Pump Diesel Engine (6)	VOC (7)	1.26	0.098
		NO_x (7)	15.81	1.23
		CO (7)	3.41	0.27
		SO_2 (7)	1.05	0.082
		PM_{10} (7)	1.12	0.088
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_2SO_4	<0.001	<0.001

EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

AIR CONTAMINANTS DATA

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates * lb/hr	TPY
		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
COG-AMM-1	Ammonia Fugitives: Storage Tank and Vaporizer(4)	NH_3	0.01	0.06
COG-AMM-2	Ammonia Fugitives: GTG/HRSG Unit 2 SCR Ammonia Injection System(4)	NH_3	<0.01	0.001
COG-AMM-3	Ammonia Fugitives: GTG/HRSG Unit 1 SCR Ammonia Injection System(4)	NH_3	<0.01	0.002

(1) Emission point identification - either specific equipment designation or emission point number 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 Title 30 Texas Administrative Code § 101.1
NO_x - total oxides of nitrogen
SO_2 - sulfur dioxide
PM_{10} - 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
H_2SO_4 - sulfuric acid
SO_3 - sulfur trioxide
NH_3 - ammonia

EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

(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 156 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).
(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. N-14, N-20A, and N-20B

must operate according to the annual emission cap which may not allow for 8,760 hours of operation for all

three emission points simultaneously.

Dated November 21, 2002