

EMISSION SOURCES - EMISSION CAPS AND INDIVIDUAL EMISSION LIMITATIONS

Flexible Permit Numbers 22690 and PSD-TX-751M1

This table lists the emission caps and individual emission limitations for all sources of air contaminants on the applicant's property covered by this permit. The emission caps and individual emission limitations shown are those derived from information submitted as part of the application for permit and allowed for these facilities. Any proposed change in emission caps or individual emission limitations will 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 Cap or Individual Emission Limit *	
			lb/hr	TPY
<u>CO Sources</u>				
Ethylene Unit 22				
22-36-1	22 Furnace 1	CO		
22-36-2	22 Furnace 2	CO		
22-36-3	22 Furnace 3	CO		
22-36-4	22 Furnace 4	CO		
22-36-5	22 Furnace 5	CO		
22-36-6	22 Furnace 6	CO		
22-36-7	22 Furnace 7	CO		
22-36-8	22 Furnace 8	CO		
Ethylene Unit 24				
24-36-1	24 Furnace 1	CO		
24-36-2	24 Furnace 2	CO		
24-36-3	24 Furnace 3	CO		
24-36-4	24 Furnace 4	CO		
24-36-5	24 Furnace 5	CO		
24-36-6	24 Furnace 6	CO		
24-36-7	24 Steam Superheater 7	CO		
24-36-8	24 DAC Hydrotreater Heater 8	CO		
24-36-9	24 Furnace 9	CO		

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Emission Point No. (1) Ethylene Unit 33	Source Name (2)	Air Contaminant Name (3)	Emission Cap or Individual Emission Limit *	
			lb/hr	TPY
33-36-1	33 Furnace 1	CO (7)		
33-36-2	33 Furnace 2	CO (7)		
33-36-3	33 Furnace 3	CO (7)		
33-36-4	33 Furnace 4	CO (7)		
33-36-5	33 Furnace 5	CO (7)		
33-36-6	33 Furnace 6	CO (7)		
33-36-7	33 Furnace 7	CO (7)		
33-36-8	33 Furnace 8	CO (7)		
33-36-9	33 Furnace 9	CO (7)		
Flare System				
56-61-10	Unit 21, 22 Flare (Flare 10)	CO		
56-61-12	Unit 22 Flare (Flare 12)	CO		
56-61-14	Unit 24 Flare (Flare 14)	CO		
56-61-20	Unit 24 Process Flare (Flare 20)	CO		
56-61-22	Unit 33 Flare (Flare 22)	CO (7)		
	Emission Cap	CO	478.62	2096.06
Decoking Equipment - Start-Up, Shutdown, and Maintenance				
22-95-(3, 3A, 3B, and 3C)	U22 Decoke	CO		
24-95-300	U24 Decoke	CO		
33-95-376 and 376A	U33 Decoke	CO		
	Emission Cap	CO	792.82	89.86

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Emission Point No. (1) Flare System	Source Name (2)	Air Contaminant Name (3)	Emission Cap or Individual Emission Limit *	
			lb/hr	TPY
56-61-4	Unit 10D/18 Flare (Flare 4)	CO		
56-61-8	Unit 10, 12 Low-Pressure Flare 8	CO		
56-61-9	Unit 10, 12 High-Pressure Flare 9	CO		
	Emission Cap	CO	1.79	7.84

Flare System - Start-Up, Shutdown, and Maintenance

56-61-4	Unit 10D/18 Flare (Flare 4)	CO		
56-61-8	Unit 10, 12 Low-Pressure Flare 8	CO		
56-61-10	Unit 21, 22 Flare (Flare 10)	CO		
56-61-20	Unit 24 Process Flare (Flare 20)	CO		
56-61-22	Unit 33 Flare (Flare 22)	CO		
	Emission Cap	CO	172.49	1.53

H₂S Sources

Flare System

56-61-4	Unit 10D/18 Flare (Flare 4)	H ₂ S		
56-61-8	Unit 10, 12 Low-Pressure Flare 8	H ₂ S		
56-61-9	Unit 10, 12 High-Pressure Flare 9	H ₂ S		
56-61-10	Unit 21, 22 Flare (Flare 10)	H ₂ S		
56-61-12	Unit 22 Flare (Flare 12)	H ₂ S		
56-61-14	Unit 24 Flare (Flare 14)	H ₂ S		
56-61-20	Unit 24 Process Flare (Flare 20)	H ₂ S		
56-61-22	Unit 33 Flare (Flare 22)	H ₂ S		
	Emission Cap	H₂S	0.10	0.29

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AIR CONTAMINANTS DATA

Emission Point No. (1) <u>NO_x Sources</u>	Source Name (2)	Air Contaminant Name (3)	Emission Cap or Individual Emission Limit *	
			lb/hr	TPY
Ethylene Unit 22				
22-36-1	22 Furnace 1	NO _x		
22-36-2	22 Furnace 2	NO _x		
22-36-3	22 Furnace 3	NO _x		
22-36-4	22 Furnace 4	NO _x		
22-36-5	22 Furnace 5	NO _x		
22-36-6	22 Furnace 6	NO _x		
22-36-7	22 Furnace 7	NO _x		
22-36-8	22 Furnace 8	NO _x		
Ethylene Unit 24				
24-36-1	24 Furnace 1	NO _x		
24-36-2	24 Furnace 2	NO _x		
24-36-3	24 Furnace 3	NO _x		
24-36-4	24 Furnace 4	NO _x		
24-36-5	24 Furnace 5	NO _x		
24-36-6	24 Furnace 6	NO _x		
24-36-7	24 Steam Superheater 7	NO _x		
24-36-8	24 DAC Hydrotreater Heater 8	NO _x		
24-36-9	24 Furnace 9	NO _x		

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Emission Point No. (1) Ethylene Unit 33	Source Name (2)	Air Contaminant Name (3)	Emission Cap or Individual Emission Limit *	
			lb/hr	TPY
33-36-1	33 Furnace 1	NO _x (7)		
33-36-2	33 Furnace 2	NO _x (7)		
33-36-3	33 Furnace 3	NO _x (7)		
33-36-4	33 Furnace 4	NO _x (7)		
33-36-5	33 Furnace 5	NO _x (7)		
33-36-6	33 Furnace 6	NO _x (7)		
33-36-7	33 Furnace 7	NO _x (7)		
33-36-8	33 Furnace 8	NO _x (7)		
33-36-9	33 Furnace 9	NO _x (7)		
Flare System				
56-61-10	Unit 21, 22 Flare (Flare 10)	NO _x		
56-61-12	Unit 22 Flare (Flare 12)	NO _x		
56-61-14	Unit 24 Flare (Flare 14)	NO _x		
56-61-20	Unit 24 Process Flare (Flare 20)	NO _x		
56-61-22	Unit 33 Flare (Flare 22)	NO _x (7)		
22-7-1	Boiler No. 10/Propylene Turbine	NO _x		
22-95-27	Turbine Alone - 720 hours per year	NO _x		
	Emission Cap	NO_x	481.86	2110.54
Flare System				
56-61-4	Unit 10D/18 Flare (Flare 4)	NO _x		
56-61-8	Unit 10, 12 Low-Pressure Flare 8	NO _x		
56-61-9	Unit 10, 12 High-Pressure Flare 9	NO _x		
	Emission Cap	NO_x	0.34	1.50
Flare System - Start-Up, Shutdown, and Maintenance				

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Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Cap or Individual Emission Limit *	
			lb/hr	TPY
56-61-4	Unit 10D/18 Flare (Flare 4)	NO _x		
56-61-8	Unit 10, 12 Low-Pressure Flare 8	NO _x		
56-61-10	Unit 21, 22 Flare (Flare 10)	NO _x		
56-61-20	Unit 24 Process Flare (Flare 20)	NO _x		
56-61-22	Unit 33 Flare (Flare 22)	NO _x		
Emission Cap		NO_x	24.68	0.25

PM and PM/PM₁₀ Sources

Cooling Towers

54-22-5	Unit 12 Cooling Tower (CT-5)	PM/PM ₁₀		
54-22-6	Unit 10ABC Cooling Tower (CT-6)	PM/PM ₁₀		
54-22-7	Unit 10ABC Cooling Tower (CT-7)	PM/PM ₁₀		
54-22-9	Unit 10D/18 Cooling Tower (CT-9)	PM/PM ₁₀		
54-22-12	Unit 21/22 Cooling Tower (CT-12)	PM/PM ₁₀		
54-22-13	Unit 24 Cooling Tower (CT-13)	PM/PM ₁₀		
54-22-17	Unit 33 Cooling Tower (CT-17)	PM/PM ₁₀		
Emission Cap		PM/PM₁₀	27.16	118.97

Ethylene Unit 22

22-36-1	22 Furnace 1	PM ₁₀
22-36-2	22 Furnace 2	PM ₁₀
22-36-3	22 Furnace 3	PM ₁₀
22-36-4	22 Furnace 4	PM ₁₀
22-36-5	22 Furnace 5	PM ₁₀
22-36-6	22 Furnace 6	PM ₁₀
22-36-7	22 Furnace 7	PM ₁₀
22-36-8	22 Furnace 8	PM ₁₀

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AIR CONTAMINANTS DATA

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Cap or Individual Emission Limit *	
			lb/hr	TPY
Ethylene Unit 24				
24-36-1	24 Furnace 1	PM ₁₀		
24-36-2	24 Furnace 2	PM ₁₀		
24-36-3	24 Furnace 3	PM ₁₀		
24-36-4	24 Furnace 4	PM ₁₀		
24-36-5	24 Furnace 5	PM ₁₀		
24-36-6	24 Furnace 6	PM ₁₀		
24-36-7	24 Steam Superheater 7	PM ₁₀		
24-36-8	24 DAC Hydrotreater Heater 8	PM ₁₀		
24-36-9	24 Furnace 9	PM ₁₀		
Ethylene Unit 33				
33-36-1	33 Furnace 1	PM ₁₀ (7)		
33-36-2	33 Furnace 2	PM ₁₀ (7)		
33-36-3	33 Furnace 3	PM ₁₀ (7)		
33-36-4	33 Furnace 4	PM ₁₀ (7)		
33-36-5	33 Furnace 5	PM ₁₀ (7)		
33-36-6	33 Furnace 6	PM ₁₀ (7)		
33-36-7	33 Furnace 7	PM ₁₀ (7)		
33-36-8	33 Furnace 8	PM ₁₀ (7)		
33-36-9	33 Furnace 9	PM ₁₀ (7)		
	Emission Cap	PM ₁₀	41.43	181.53

Decoking - Start up, Shutdown and Maintenance

22-95-(3, 3A,	U22 Decoke	PM/PM ₁₀
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AIR CONTAMINANTS DATA

Emission Point No. (1) 3B, and 3C)	Source Name (2)	Air Contaminant Name (3)	Emission Cap or Individual Emission Limit *	
			lb/hr	TPY
24-95-300	U24 Decoke	PM/PM ₁₀		
33-95-376 and 376A	U33 Decoke	PM/PM ₁₀		
	Emission Cap	PM/PM₁₀	607.69	62.09

SO₂ Sources

Ethylene Unit 22

22-36-1	22 Furnace 1	SO ₂
22-36-2	22 Furnace 2	SO ₂
22-36-3	22 Furnace 3	SO ₂
22-36-4	22 Furnace 4	SO ₂
22-36-5	22 Furnace 5	SO ₂
22-36-6	22 Furnace 6	SO ₂
22-36-7	22 Furnace 7	SO ₂
22-36-8	22 Furnace 8	SO ₂

Ethylene Unit 24

24-36-1	24 Furnace 1	SO ₂
24-36-2	24 Furnace 2	SO ₂
24-36-3	24 Furnace 3	SO ₂
24-36-4	24 Furnace 4	SO ₂
24-36-5	24 Furnace 5	SO ₂
24-36-6	24 Furnace 6	SO ₂
24-36-7	24 Steam Superheater 7	SO ₂
24-36-8	24 DAC Hydrotreater Heater 8	SO ₂
24-36-9	24 Furnace 9	SO ₂

Ethylene Unit 33

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AIR CONTAMINANTS DATA

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Cap or Individual Emission Limit *	
			lb/hr	TPY
33-36-1	33 Furnace 1	SO ₂ (7)		
33-36-2	33 Furnace 2	SO ₂ (7)		
33-36-3	33 Furnace 3	SO ₂ (7)		
33-36-4	33 Furnace 4	SO ₂ (7)		
33-36-5	33 Furnace 5	SO ₂ (7)		
33-36-6	33 Furnace 6	SO ₂ (7)		
33-36-7	33 Furnace 7	SO ₂ (7)		
33-36-8	33 Furnace 8	SO ₂ (7)		
33-36-9	33 Furnace 9	SO ₂ (7)		
Emission Cap		SO₂	223.90	374.52
Flare System				
56-61-4	Unit 10D/18 Flare (Flare 4)	SO ₂		
56-61-8	Unit 10, 12 Low-Pressure Flare 8	SO ₂		
56-61-9	Unit 10, 12 High-Pressure Flare 9	SO ₂		
56-61-10	Unit 21, 22 Flare (Flare 10)	SO ₂		
56-61-12	Unit 22 Flare (Flare 12)	SO ₂		
56-61-14	Unit 24 Flare (Flare 14)	SO ₂		
56-61-20	Unit 24 Process Flare (Flare 20)	SO ₂		
56-61-22	Unit 33 Flare (Flare 22)	SO ₂ (7)		
Emission Cap		SO₂	18.33	24.72

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AIR CONTAMINANTS DATA

Emission Point No. (1) <u>VOC Sources</u>	Source Name (2)	Air Contaminant Name (3)	Emission Cap or Individual Emission Limit *	
			lb/hr	TPY
Ethylene Unit 22				
22-36-1	22 Furnace 1	VOC		
22-36-2	22 Furnace 2	VOC		
22-36-3	22 Furnace 3	VOC		
22-36-4	22 Furnace 4	VOC		
22-36-5	22 Furnace 5	VOC		
22-36-6	22 Furnace 6	VOC		
22-36-7	22 Furnace 7	VOC		
22-36-8	22 Furnace 8	VOC		
Ethylene Unit 24				
24-36-1	24 Furnace 1	VOC		
24-36-2	24 Furnace 2	VOC		
24-36-3	24 Furnace 3	VOC		
24-36-4	24 Furnace 4	VOC		
24-36-5	24 Furnace 5	VOC		
24-36-6	24 Furnace 6	VOC		
24-36-7	24 Steam Superheater 7	VOC		
24-36-8	24 DAC Hydrotreater Heater 8	VOC		
24-36-9	24 Furnace 9	VOC		
Ethylene Unit 33				
33-36-1	33 Furnace 1	VOC		
33-36-2	33 Furnace 2	VOC		
33-36-3	33 Furnace 3	VOC		
33-36-4	33 Furnace 4	VOC		
33-36-5	33 Furnace 5	VOC		
33-36-6	33 Furnace 6	VOC		

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AIR CONTAMINANTS DATA

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Cap or Individual Emission Limit *	
			lb/hr	TPY
33-36-7	33 Furnace 7	VOC		
33-36-8	33 Furnace 8	VOC		
33-36-9	33 Furnace 9	VOC		

Process Fugitive Equipment

10.1-0-0	Unit 10AC Process Fugitives (4)	VOC
10.2-0-0	Unit 10D Process Fugitives (4)	VOC
10.3-0-0	Unit 10B Process Fugitives (4)	VOC
12-0-0	Unit 12 Process Fugitives (4)	VOC
18-0-0	Unit 18 Process Fugitives (4)	VOC
21-0-0	Unit 21 Process Fugitives (4)	VOC
24.1-0-0	Unit 24.1 Process Fugitives (4)	VOC
22-0-0	Unit 22 Process Fugitives (4)	VOC
24-0-0	Unit 24 Process Fugitives (4)	VOC
33-0-0	Unit 33 Process Fugitives (4)	VOC

Cooling Towers

54-22-5	Unit 12 Cooling Tower (CT-5)	VOC
54-22-6	Unit 10ABC Cooling Tower (CT-6)	VOC
54-22-7	Unit 10ABC Cooling Tower (CT-7)	VOC
54-22-9	Unit 10D/18 Cooling Tower (CT-9)	VOC
54-22-12	Unit 21/22 Cooling Tower (CT-12)	VOC
54-22-13	Unit 24 Cooling Tower (CT-13)	VOC
54-22-17	Unit 33 Cooling Tower (CT-17)	VOC

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AIR CONTAMINANTS DATA

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Cap or Individual Emission Limit *	
			lb/hr	TPY
Fixed-Roof Storage Tanks				
24-95-314	Methanol Storage Tank	VOC		
33-95-10	Methanol Storage Tank	VOC		
33-95-14	TBC Storage Tank	VOC		
Lube/Seal Reservoirs				
10-95-328	D-328 Seal Oil Reservoir	VOC		
10-95-357	D-357 Lube/Seal Oil Reservoir	VOC		
18-95-54	D-54 Lube/Seal Oil Reservoir	VOC		
21-95-120	D-120 Lube/Seal Oil Reservoir	VOC		
22-95-100	D-100 Lube Oil Reservoir	VOC		
22-95-101	D-101 Seal Oil Reservoir	VOC		
22-95-120	D-120 Lube/Seal Oil Reservoir	VOC		
22-95-130	D-130 Lube/Seal Oil Reservoir	VOC		
24-95-304	D-304 Lube/Seal Oil Reservoir	VOC		
24-95-305	D-305 Lube/Seal Oil Reservoir	VOC		
24-95-306	D-306 Lube/Seal Oil Reservoir	VOC		
24-95-307	Expander Lube Oil Reservoir	VOC		
33-95-15	C-101 (Cracked Gas)	VOC		
33-95-17	C-102 (Ethylene)	VOC		
33-95-19	C-103 (Propylene)	VOC		
33-95-390	C-101 (Cracked Gas)	VOC		
33-95-392	C-102 (Ethylene)	VOC		
33-95-394	C-103 (Propylene)	VOC		

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AIR CONTAMINANTS DATA

Emission Point No. (1) Sumps	Source Name (2)	Air Contaminant Name (3)	Emission Cap or Individual Emission Limit *	
			lb/hr	TPY
10.1-SUMP1	10.1 Oily Water Sewer Sump	VOC		
12-SUMP1	12 Oily Water Sewer Sump	VOC		
21/22-SUMP1	21/22 Oily Water Sewer Sump	VOC		
24-SUMP2	24 Ethylene Sodium Hydroxide Sump	VOC		
24-SUMP3	24 Oily Water Sewer Sump	VOC		
33-SUMP1	33 Sodium Hydroxide Sump	VOC		
33-SUMP2	33 Water Sludge Pit	VOC		
33-SUMP3	33 Oily Water Sewer Sump	VOC		
33-SUMP4	33 Blowdown Drum Sump	VOC		
Flare System				
56-61-4	Unit 10D/18 Flare (Flare 4)	VOC		
56-61-8	Unit 10, 12 Low Pressure Flare 8	VOC		
56-61-9	Unit 10, 12 High Pressure Flare 9	VOC		
56-61-10	Unit 21, 22 Flare (Flare 10)	VOC		
56-61-12	Unit 22 Flare (Flare 12)	VOC		
56-61-14	Unit 24 Flare (Flare 14)	VOC		
56-61-20	Unit 24 Process Flare (Flare 20)	VOC		
56-61-22	Unit 33 Flare (Flare 22)	VOC		
	Emission Cap	VOC	120.36	497.29

Flare System - Start-up, Shutdown, and Maintenance

56-61-4	Unit 10D/18 Flare (Flare 4)	VOC
56-61-8	Unit 10, 12 Low-Pressure Flare 8	VOC
56-61-10	Unit 21, 22 Flare (Flare 10)	VOC
56-61-20	Unit 24 Process Flare (Flare 20)	VOC
56-61-22	Unit 33 Flare (Flare 22)	VOC

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AIR CONTAMINANTS DATA

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Cap or Individual Emission Limit *	
			lb/hr	TPY
	Emission Cap	VOC	235.12	2.14
<u>Benzene Sources (5)</u>				
10.1-0-0	Unit 10AC Process Fugitives (4)	Benzene		
10.2-0-0	Unit 10D Process Fugitives (4)	Benzene		
10.3-0-0	Unit 10B Process Fugitives (4)	Benzene		
12-0-0	Unit 12 Process Fugitives (4)	Benzene		
21-0-0	Unit 21 Process Fugitives (4)	Benzene		
24.1-0-0	Unit 24.1 Process Fugitives (4)	Benzene		
22-0-0	Unit 22 Process Fugitives (4)	Benzene		
24-0-0	Unit 24 Process Fugitives (4)	Benzene		
33-0-0	Unit 33 Process Fugitives (4)	Benzene		
	Emission Cap	Benzene	1.46	6.37
22-7-1	Boiler No. 10 (Boiler and Turbine Combined)	CO	21.54	94.34
		PM ₁₀	3.92	17.24
		SO ₂	16.69	73.10
		VOC	3.65	15.97
22-95-27	Propylene Compressor Turbine (operating alone) (6)	CO	7.01	2.52
		PM ₁₀	0.84	0.30
		SO ₂	0.44	0.16
		VOC	1.41	0.51

(1) Emission point identification - either specific equipment designation or emission point number from plot plan.

EMISSION SOURCES - EMISSION CAPS AND INDIVIDUAL EMISSION LIMITATIONS

- (2) Specific point source name. For fugitive sources use area name or fugitive source name.
- (3) CO - carbon monoxide
H₂S - hydrogen sulfide
NO_x - total oxides of nitrogen
PM - particulate matter, suspended in the atmosphere, greater than 10 microns in diameter.
PM₁₀ - particulate matter equal to or less than 10 microns in diameter. Where PM is not listed, it shall be assumed that no PM greater than 10 microns is emitted.
SO₂ - sulfur dioxide
VOC - volatile organic compounds as defined in Title 30 Texas Administrative Code § 101.1
- (4) Fugitive emissions are an estimate only and should not be considered as a maximum allowable emission rate.
- (5) Benzene from other facilities is included in the VOC cap and does not contribute to the benzene emission cap.
- (6) 720 operating hours in a calendar year.
- (7) PSD-TX-751M1 pollutant

* Emission rates are based on and the facilities are limited by the following maximum operating schedule:

Hrs/day 24 Days/week 7 Weeks/year 52

** Compliance with annual emission limits is based on a rolling 12-month period.