

# Emission Sources - Maximum Allowable Emission Rates

Permit Number 2501A and PSDTX767M2

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, sources, and related activities. 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	
			lbs/hour	TPY (4)
Boilers and Heaters				
23BA301	Heater 23BA301	NO <sub>x</sub>	7.00	
		SO <sub>2</sub>	1.40	
		H <sub>2</sub> S	0.01	
		CO	1.80	
		PM <sub>10</sub>	0.10	
		PM <sub>2.5</sub>	0.10	
		VOC	0.10	
23BA302	Heater 23BA302	NO <sub>x</sub>	3.20	
		SO <sub>2</sub>	0.80	
		H <sub>2</sub> S	0.01	
		CO	1.10	
		PM <sub>10</sub>	0.10	
		PM <sub>2.5</sub>	0.10	
		VOC	0.10	

## Emission Sources - Maximum Allowable Emission Rates

23BA301 and 23BA302	Heaters 23BA301 and 23BA302	NO <sub>x</sub>		44.60
		SO <sub>2</sub>		9.50
		H <sub>2</sub> S		0.04
		CO		12.30
		PM <sub>10</sub>		0.90
		PM <sub>2.5</sub>		0.90
		VOC		1.00
23BC201	Atmospheric Tower Heater	NO <sub>x</sub>	14.28	62.55
		CO	14.28	62.55
		VOC	1.93	8.43
		SO <sub>2</sub>	9.52	20.85
		H <sub>2</sub> S	0.03	0.13
		PM <sub>10</sub>	2.66	11.65
		PM <sub>2.5</sub>	2.66	11.65
27BA1000	"C" Unifiner Reactor Charge Heater	NO <sub>x</sub>	3.82	13.31
		CO	3.21	11.18
		VOC	0.21	0.73
		SO <sub>2</sub>	1.04	1.10
		H <sub>2</sub> S	<0.01	0.01
		PM <sub>10</sub>	0.29	1.01
		PM <sub>2.5</sub>	0.29	1.01

## Emission Sources - Maximum Allowable Emission Rates

28BA1200	"A" Unifiner Reactor Charge Heater	NO <sub>x</sub>	2.75	12.02
		CO	2.31	10.10
		VOC	0.15	0.66
		SO <sub>2</sub>	0.75	0.88
		H <sub>2</sub> S	<0.01	0.01
		PM <sub>10</sub>	0.21	0.91
		PM <sub>2.5</sub>	0.21	0.91
29BA1300	"B" Unifiner Reactor Charge Heater	NO <sub>x</sub>	3.03	13.27
		CO	2.47	10.82
		VOC	0.16	0.71
		SO <sub>2</sub>	0.80	0.92
		H <sub>2</sub> S	<0.01	0.01
		PM <sub>10</sub>	0.22	0.98
		PM <sub>2.5</sub>	0.22	0.98
40BA1001	Combined Heaters (LCO Charge Heater, Diesel Charge Heater, and Fractionation Reboiler Heater)	NO <sub>x</sub>	4.39	16.10
		CO	7.56	33.13
		VOC	0.62	2.72
		SO <sub>2</sub>	3.09	13.53
		H <sub>2</sub> S	0.01	0.06
		PM <sub>10</sub>	0.86	3.76
		PM <sub>2.5</sub>	0.86	3.76

Emission Sources - Maximum Allowable Emission Rates

41BA101	"D" Unifiner Reactor Charge Heater	NO <sub>x</sub>	1.96	8.59
		CO	1.65	7.21
		VOC	0.11	0.47
		SO <sub>2</sub>	0.53	0.61
		H <sub>2</sub> S	<0.01	0.01
		PM <sub>10</sub>	0.15	0.65
		PM <sub>2.5</sub>	0.15	0.65
41BA102	"D" Unifiner Rerun Tower Reboiler	NO <sub>x</sub>	2.65	11.59
		CO	2.22	9.74
		VOC	0.15	0.64
		H <sub>2</sub> S	<0.01	0.01
		SO <sub>2</sub>	0.72	0.79
		PM <sub>10</sub>	0.20	0.88
		PM <sub>2.5</sub>	0.20	0.88

## Emission Sources - Maximum Allowable Emission Rates

17H01	Crude Heater	NO <sub>x</sub>	7.77	8.76
		CO	16.09	28.18
		VOC	1.35	4.72
		SO <sub>2</sub>	6.46	8.75
		H <sub>2</sub> S	0.02	0.07
		PM <sub>10</sub>	1.86	6.53
		PM <sub>2.5</sub>	1.86	6.53
		NH <sub>3</sub>	1.14	4.00
FCCU				
42CB2201	FCC Unit Stack	NO <sub>x</sub>	270.00	172.00
		CO	269.00	198.00
		VOC	13.00	37.00
		SO <sub>2</sub>	29.65	129.89
		PM <sub>10</sub>	75.50	240.00
		PM <sub>2.5</sub>	75.50	240.00
		H <sub>2</sub> SO <sub>4</sub>	1.58	6.90
		HCN	23.00	100.00

Emission Sources - Maximum Allowable Emission Rates

Emission Sources - Maximum Allowable Emission Rates

39CB2001	Tail Gas Incinerator Unit 39 SRU	VOC	0.21	
		CO	10.16	
		H <sub>2</sub> S	0.48	
		NH <sub>3</sub>	0.01	
		NO <sub>x</sub>	5.51	
		SO <sub>2</sub>	93.95	
		PM <sub>10</sub>	0.20	
		PM <sub>2.5</sub>	0.20	

## Emission Sources - Maximum Allowable Emission Rates

46CB6301	Tail Gas Incinerator Unit 46 SRU	VOC	0.32	
		CO	9.26	
		H <sub>2</sub> S	0.44	
		NH <sub>3</sub>	0.01	
		NO <sub>x</sub>	5.01	
		SO <sub>2</sub>	85.15	
		PM <sub>10</sub>	0.18	
		PM <sub>2.5</sub>	0.18	
39CB2001, 46CB6301	Combined Annual Cap for both TGIs	VOC		0.53
		CO		38.66
		H <sub>2</sub> S		1.84
		NH <sub>3</sub>		0.01
		NO <sub>x</sub>		20.94
		SO <sub>2</sub>		354.28
		PM <sub>10</sub>		0.55
		PM <sub>2.5</sub>		0.55
Cooling Towers				
27CWT2	Cooling Tower No. 2 (5)	VOC	6.24	2.87
		PM <sub>10</sub>	14.05	61.54
		PM <sub>2.5</sub>	0.16	0.68
22CWT3	Cooling Tower No. 3 (5)	VOC	12.01	5.50
		PM <sub>10</sub>	0.54	2.37
		PM <sub>2.5</sub>	0.01	0.03
23CWT7	Cooling Tower No. 7 (5)	VOC	4.52	2.08
		PM <sub>10</sub>	10.18	44.58



Emission Sources - Maximum Allowable Emission Rates

		PM <sub>2.5</sub>	0.11	0.50
44CWT9	Cooling Tower No. 9 (5)	VOC	3.00	1.38
		PM <sub>10</sub>	0.14	0.59
		PM <sub>2.5</sub>	<0.01	0.01
42CWT10	Cooling Tower No. 10 (5)	VOC	16.01	7.36
		PM <sub>10</sub>	0.72	3.16
		PM <sub>2.5</sub>	0.01	0.04
40CWT11	Cooling Tower No. 11 (5)	VOC	7.6	3.31
		PM <sub>10</sub>	0.34	1.50
		PM <sub>2.5</sub>	<0.01	0.02
Storage Tanks				
22FB747	Storage Tank 22FB747	H <sub>2</sub> SO <sub>4</sub>	0.06	0.01
42FB2802	Storage Tank 42FB2802	VOC	0.10	0.01
45FB6001	Storage Tank 45FB6001	VOC	0.01	0.01
45FB6002	Storage Tank 45FB6002	VOC	0.01	0.01
45FB7403	Storage Tank 45FB7403	VOC	0.21	0.86
		NH <sub>3</sub>	<0.01	<0.01
		H <sub>2</sub> S	0.01	0.03
46FB6301	Storage Tank 46FB6301	VOC	0.01	0.01
91FB922	Storage Tank 91FB922	VOC	0.45	0.43
90FB735	Storage Tank 90FB735	VOC	0.12	0.37
Loading				
9058LOAD	"A" Pump Rail Loading	VOC	0.01	0.01
9059LOAD	B. B. Rack-Truck Loading	VOC	0.01	0.01
Wastewater				

## Emission Sources - Maximum Allowable Emission Rates

47AD5401	API Separator Diversion Sump	VOC	0.01	0.01
47AD5402	API Oil Pit	VOC	2.00	0.14
47AD5405	API Muck Pit	VOC	2.00	0.18
47AD5407	Lift Station	VOC	0.04	0.19
		H <sub>2</sub> S	0.02	0.07
47AD5409	DAF Unit	VOC	5.51	24.15
		H <sub>2</sub> S	0.02	0.07
47FA5	Equalization Tank	VOC	0.01	0.01
47GF5401	API Separator	VOC	0.14	0.62
		H <sub>2</sub> S	0.02	0.07
90CPI2001	Outfall 007 CPI Separator	VOC	0.25	1.12
90CPI8301	Outfall 003 CPI Separator	VOC	0.27	1.18
91CPI901	900-Tank Farm CPI Separator	VOC	0.14	0.61

## Emission Sources - Maximum Allowable Emission Rates

30FL1 and 30FL6	Main Refinery Flare and ULSD Flare Combined Emissions	NO <sub>x</sub>	64.02	19.30
		CO	462.40	139.50
		VOC	255.00	393.30
		SO <sub>2</sub>	1,402.00	115.60
		H <sub>2</sub> S	14.20	1.20
90CB5601	Vapor Combustion Unit	NO <sub>x</sub>	6.00	8.80
		CO	5.01	7.39
		VOC	20.85	19.44
		SO <sub>2</sub>	0.03	0.06
		PM	0.45	0.66
		PM <sub>10</sub>	0.45	0.66
		PM <sub>2.5</sub>	0.45	0.66
FUG	Fugitives (5)	VOC	88.63	388.01
		Benzene	0.03	0.15
		H <sub>2</sub> S	0.21	0.91
		NH <sub>3</sub>	0.05	0.16
22AVENT	BHT Catalyst Regeneration	VOC	5.00	0.06
22FA225	Alky Unit Bauxite Tower Washing	VOC	1.00	0.09
<b>Maintenance, Startup and Shutdown (MSS)</b>				
EXCH-MSS	Heat Exchanger MSS Emissions	VOC	17.35	1.81
		Benzene	0.10	0.01

## Emission Sources - Maximum Allowable Emission Rates

SMALL-MSS	Small Equipment MSS Emissions	VOC	2.08	1.56
		Benzene	0.01	0.01
VAC-MSS	Vacuum Truck MSS Emissions	VOC	1.37	0.51
		Benzene	0.02	0.01
		NH <sub>3</sub>	0.01	0.01
		H <sub>2</sub> S	0.01	0.01
FRAC-MSS	Frac Tank MSS Emissions	VOC	0.88	5.36
		Benzene	0.01	0.07
VACFR-MSS	Vacuum Truck/Frac Tank Cleaning MSS Emissions	VOC	2.93	0.11
		Benzene	0.05	0.01
		NH <sub>3</sub>	0.01	0.01
WW-MSS	Wastewater Treatment Plant MSS Activities	VOC	0.14	0.01
		Benzene	0.98	0.02
		NH <sub>3</sub>	0.05	0.01
		H <sub>2</sub> S	0.01	0.01
TANK-MSS	Tank MSS Activities	VOC	529.27	(6)
		Benzene	8.07	(6)

Emission Sources - Maximum Allowable Emission Rates

47FB7403-MSS	Storage Tank 45FB7403 MSS	VOC	(8)	(6)
		NH <sub>3</sub>	0.01	<0.01
		H <sub>2</sub> S	0.23	<0.01
INSIG-MSS	Insignificant MSS Activities	VOC	23.82	4.15
		NO <sub>x</sub>	0.15	0.03
		SO <sub>2</sub>	0.15	0.03
		CO	0.15	0.03
		Benzene	0.01	0.01
		PM <sub>10</sub>	6.30	0.39
		PM <sub>2.5</sub>	0.95	0.06
DEINV-MSS	Deinventory MSS Activities	VOC	4.11	0.16
		Benzene	0.05	0.01
FCCU-MSS	FCCU MSS Activities	CO	1,129.66	27.11
BOILER-MSS	Boiler MSS Activities	NO <sub>x</sub>	11.99	(7)
		CO	123.86	(7)
TO-MSS	Thermal Oxidizer Controlled MSS Activities	VOC	5.21	3.28
		NO <sub>x</sub>	6.12	0.34
		SO <sub>2</sub>	0.01	0.01
		CO	5.14	0.29
		Benzene	0.04	0.03
		NH <sub>3</sub>	0.01	0.01
		PM <sub>10</sub>	0.01	0.01
		PM <sub>2.5</sub>	0.01	0.01
		H <sub>2</sub> S	0.01	0.01

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

Emission Sources - Maximum Allowable Emission Rates

- (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<sub>x</sub> - total oxides of nitrogen
  - SO<sub>2</sub> - sulfur dioxide
  - H<sub>2</sub>S - hydrogen sulfide
  - NH<sub>3</sub> - ammonia
  - PM<sub>10</sub> - total particulate matter equal to or less than 10 microns in diameter, including PM<sub>2.5</sub>, as represented
  - PM<sub>2.5</sub> - particulate matter equal to or less than 2.5 microns in diameter
  - CO - carbon monoxide
  - H<sub>2</sub>SO<sub>4</sub> - sulfuric acid
  - HCN - hydrogen cyanide
- (4) Compliance with annual emission limits (tons per year) is based on a 12 month rolling period.
- (5) Emission rate is an estimate and is enforceable through compliance with the applicable special condition(s) and permit application representations.
- (6) Annual emissions from activities authorized by EPN TANK-MSS will be accommodated as part of the annual allowable rate of each of the storage tanks. Compliance will be demonstrated by performing monthly calculations as required in Special Condition No. 46.F(4).
- (7) Annual emissions of NO<sub>x</sub> and CO from activities authorized by EPN BOILER-MSS will be accommodated as part of the annual allowable NO<sub>x</sub> and CO caps for the boilers (EPN BOILER\_CAP) authorized in Permit 124424.
- (8) Hourly emissions are authorized by EPN TANK-MSS.

Date: March 22, 2023