

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 _x	7.00	
		SO ₂	1.40	
		H ₂ S	0.01	
		CO	1.80	
		PM ₁₀	0.10	
		PM _{2.5}	0.10	
		VOC	0.10	
23BA302	Heater 23BA302	NO _x	3.20	
		SO ₂	0.80	
		H ₂ S	0.01	
		CO	1.10	
		PM ₁₀	0.10	
		PM _{2.5}	0.10	
		VOC	0.10	

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

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

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41BA101	"D" Unifiner Reactor Charge Heater	NO _x	1.96	8.59
		CO	1.65	7.21
		VOC	0.11	0.47
		SO ₂	0.53	0.61
		H ₂ S	<0.01	0.01
		PM ₁₀	0.15	0.65
		PM _{2.5}	0.15	0.65
41BA102	"D" Unifiner Rerun Tower Reboiler	NO _x	2.65	11.59
		CO	2.22	9.74
		VOC	0.15	0.64
		H ₂ S	<0.01	0.01
		SO ₂	0.72	0.79
		PM ₁₀	0.20	0.88
		PM _{2.5}	0.20	0.88
44BA3001	BA-3001 DAO Mix Heater	CO	1.53	6.71
		NO _x	1.80	7.90
		PM ₁₀	0.14	0.62
		PM _{2.5}	0.14	0.62
		SO ₂	0.49	2.15
		H ₂ S	<0.01	0.01
		VOC	0.10	0.44

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44BA3002	BA-3002 Hot Oil Heater	CO	5.36	21.51
		NO _x	5.70	22.87
		PM ₁₀	0.49	1.98
		PM _{2.5}	0.49	1.98
		SO ₂	1.73	6.93
		H ₂ S	<0.01	0.01
		VOC	0.36	1.45
44BA3005	BA-3005 Asphalt Heater	CO	2.72	11.92
		NO _x	3.24	14.20
		PM ₁₀	0.25	1.10
		PM _{2.5}	0.25	1.10
		SO ₂	0.87	3.82
		H ₂ S	<0.01	0.01
		VOC	0.18	0.79
17H01	Crude Heater	NO _x	7.77	8.76
		CO	16.09	28.18
		VOC	1.35	4.72
		SO ₂	6.46	8.75
		H ₂ S	0.02	0.07
		PM ₁₀	1.86	6.53
		PM _{2.5}	1.86	6.53
		NH ₃	1.14	4.00

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81BA25	Boilerhouse Hot Oil Heater	NO _x	1.96	8.59
		CO	1.65	7.21
		VOC	0.11	0.47
		SO ₂	0.53	0.61
		H ₂ S	<0.01	0.01
		PM ₁₀	0.15	0.65
		PM _{2.5}	0.15	0.65
81BF01	Package Boiler No. 1	NO _x	3.95	
		CO	13.63	
		VOC	1.83	
		PM ₁₀	3.66	
		PM _{2.5}	3.66	
		SO ₂	9.10	
		H ₂ S	0.03	
		NH ₃	1.83	
50BF02	Package Boiler No. 2	NO _x	3.95	
		CO	13.63	
		VOC	1.83	
		PM ₁₀	3.66	
		PM _{2.5}	3.66	
		SO ₂	9.10	
		H ₂ S	0.03	
		NH ₃	1.83	
50BF03	Package Boiler No. 3	NO _x	3.95	
		CO	13.63	

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		VOC	1.83	
		PM ₁₀	3.66	
		PM _{2.5}	3.66	
		SO ₂	9.10	
		H ₂ S	0.03	
		NH ₃	1.83	
81BF01, 50BF02, 50BF03	Package Boilers (Nos. 1, 2, and 3)	NO _x		35.50
		CO		131.50
		VOC		20.40
		PM ₁₀		26.00
		PM _{2.5}		26.00
		SO ₂		43.90
		H ₂ S		0.30
		NH ₃		16.00
FCCU				
42CB2201	FCC Unit Stack	NO _x	270.00	172.00
		CO	269.00	198.00
		VOC	13.00	37.00
		SO ₂	29.65	129.89
		PM ₁₀	75.50	240.00
		PM _{2.5}	75.50	240.00
		H ₂ SO ₄	1.58	6.90
		Filterable PM	32.50	142.35
SRU				
39CB2001	Tail Gas Incinerator Unit 39 SRU	VOC	0.21	

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		CO	10.16	
		H ₂ S	0.48	
		NH ₃	0.01	
		NO _x	5.51	
		SO ₂	93.95	
		PM ₁₀	0.20	
		PM _{2.5}	0.20	
46CB6301	Tail Gas Incinerator Unit 46 SRU	VOC	0.32	
		CO	9.26	
		H ₂ S	0.44	
		NH ₃	0.01	
		NO _x	5.01	
		SO ₂	85.15	
		PM ₁₀	0.18	
PM _{2.5}	0.18			
39CB2001, 46CB6301	Combined Annual Cap for both TGIs	VOC		0.53
		CO		38.66
		H ₂ S		1.84
		NH ₃		0.01
		NO _x		20.94
		SO ₂		354.28
		PM ₁₀		0.55
PM _{2.5}		0.55		
Cooling Towers				
27CWT2	Cooling Tower No. 2 (5)	VOC	6.24	2.87

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		PM ₁₀	14.05	61.54
		PM _{2.5}	0.16	0.68
22CWT3	Cooling Tower No. 3 (5)	VOC	12.01	5.50
		PM ₁₀	0.54	2.37
		PM _{2.5}	0.01	0.03
23CWT7	Cooling Tower No. 7 (5)	VOC	4.52	2.08
		PM ₁₀	10.18	44.58
		PM _{2.5}	0.11	0.50
44CWT9	Cooling Tower No. 9 (5)	VOC	3.00	1.38
		PM ₁₀	0.14	0.59
		PM _{2.5}	<0.01	0.01
42CWT10	Cooling Tower No. 10 (5)	VOC	16.01	7.36
		PM ₁₀	0.72	3.16
		PM _{2.5}	0.01	0.04
40CWT11	Cooling Tower No. 11 (5)	VOC	7.6	3.31
		PM ₁₀	0.34	1.50
		PM _{2.5}	<0.01	0.02
Storage Tanks				
22FB747	Storage Tank 22FB747	H ₂ SO ₄	0.06	0.01
42FB2802	Storage Tank 42FB2802	VOC	0.10	0.01
44FB3002	ROSE Flush Oil Tank	VOC	0.01	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 ₃	<0.01	<0.01

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		H ₂ S	0.01	0.03
46FB6301	Storage Tank 46FB6301	VOC	0.01	0.01
90FB807	Storage Tank 90FB807	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
9157LOAD	"B" Pump Railcar Rack	VOC	5.16	0.07
9160LOAD	"B" Pump Truck Rack	VOC	5.16	0.09
Wastewater				
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 ₂ S	0.02	0.07
47AD5409	DAF Unit	VOC	5.51	24.15
		H ₂ S	0.02	0.07
47FA5	Equalization Tank	VOC	0.01	0.01
47GF5401	API Separator	VOC	0.14	0.62
		H ₂ 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
91CPI0301	300-Tank Farm CPI Separator	VOC	0.14	0.61
91CPI0401	400-Tank Farm CPI Separator	VOC	0.08	0.35

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91CPI901	900-Tank Farm CPI Separator	VOC	0.14	0.61
30FL1 and 30FL6	Main Refinery Flare and ULSD Flare Combined Emissions	NO _x	12.00	19.30
		CO	86.50	139.50
		VOC	255.00	393.30
		SO ₂	1,402.00	115.60
		H ₂ S	14.20	1.20
FUG	Fugitives (5)	VOC	88.07	385.56
		Benzene	0.13	0.58
		H ₂ S	0.21	0.91
		NH ₃	0.05	0.16
22AVENT	BHT Catalyst Regeneration	VOC	5.00	0.06
22FA225	Alky Unit Bauxite Tower Washing	VOC	1.00	0.03
Maintenance, Startup and Shutdown (MSS)				
EXCH-MSS	Heat Exchanger MSS Emissions	VOC	17.35	1.81
		Benzene	0.10	0.01
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 ₃	0.01	0.01
		H ₂ S	0.01	0.01
FRAC-MSS	Frac Tank MSS Emissions	VOC	0.88	5.36
		Benzene	0.01	0.07

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VACFR-MSS	Vacuum Truck/Frac Tank Cleaning MSS Emissions	VOC	2.93	0.11
		Benzene	0.05	0.01
		NH ₃	0.01	0.01
WW-MSS	Wastewater Treatment Plant MSS Activities	VOC	0.14	0.01
		Benzene	0.98	0.02
		NH ₃	0.05	0.01
		H ₂ S	0.01	0.01
TANK-MSS	Tank MSS Activities	VOC	529.27	(6)
		Benzene	8.07	(6)
47FB7403-MSS	Storage Tank 45FB7403 MSS	VOC	(8)	(6)
		NH ₃	0.01	<0.01
		H ₂ S	0.23	<0.01
INSIG-MSS	Insignificant MSS Activities	VOC	23.82	4.15
		NO _x	0.15	0.03
		SO ₂	0.15	0.03
		CO	0.15	0.03
		Benzene	0.01	0.01
		PM ₁₀	6.30	0.39
		PM _{2.5}	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

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BOILER-MSS	Boiler MSS Activities	NO _x	11.99	(7)
		CO	123.86	(7)
TO-MSS	Thermal Oxidizer Controlled MSS Activities	VOC	5.21	3.28
		NO _x	6.12	0.34
		SO ₂	0.01	0.01
		CO	5.14	0.29
		Benzene	0.04	0.03
		NH ₃	0.01	0.01
		PM ₁₀	0.01	0.01
		PM _{2.5}	0.01	0.01
		H ₂ S	0.01	0.01

- (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
- SO₂ - sulfur dioxide
- H₂S - hydrogen sulfide
- NH₃ - ammonia
- PM₁₀ - total particulate matter equal to or less than 10 microns in diameter, including PM_{2.5}, as represented
- PM_{2.5} - particulate matter equal to or less than 2.5 microns in diameter
- CO - carbon monoxide
- H₂SO₄ - sulfuric acid
- (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_x and CO from activities authorized by EPN BOILER-MSS will be accommodated as part of the annual allowable NO_x and CO caps for the boilers.
- (8) Hourly emissions are authorized by EPN TANK-MSS.

Date: February 28, 2017