Emission Sources - Maximum Allowable Emission Rates

Permit Number 5920A and PSDTX103M4

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)
Unit 38 - Distillate Hydrotreater				
38-0-0	DHT Fugitives (5)	VOC	3.09	13.52
		Benzene	<0.01	<0.01
		H_2S	0.02	0.10
		NH_3	<0.01	0.01
38-36-251	Reactor Charge Heater	VOC	0.53	1.06
		NO_x	2.67	5.32
		CO	7.13	14.19
		SO_2	2.60	5.18
		PM	0.74	1.47
38-36-252	Stripper Reboiler	VOC	0.53	2.34
		NO_x	2.67	11.71
		CO	7.13	31.22
		SO_2	2.60	11.39
		PM	0.74	3.23
Unit 9 - Crude Unit				
9-0-0	Fugitives (5)	VOC	3.65	15.98
		Benzene	<0.01	0.01
		H_2S	<0.01	<0.01
9-36-4	Crude Charge Heater	VOC	1.26	5.53
		NO_x (6)	16.86	69.29
		CO	16.85	40.19
		SO_2	6.15	8.42
		PM	1.74	7.64

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54-22-2	Cooling Tower No. 2	VOC	0.71	3.13
		PM	0.68	2.98
		PM_{10}	0.48	2.10
		$PM_{2.5}$	<0.01	0.01
Unit 25.1 Sour Crude Unit				
25.1-0-0	Sour Crude Unit Fugitives (5)	VOC	2.52	11.03
		Benzene	<0.01	<0.01
		H_2S	<0.01	0.01
25.1-36-1	Crude Charge Heater	VOC	2.52	11.03
		NO_x (6)	93.40	75.68
		CO	33.62	80.21
		SO_2 (6)	12.27	53.75
		PM (6)	3.48	15.24
		NH_3	2.73	11.96
54-22-14	Cooling Tower No. 14 (5)	VOC	2.94	14.72
		PM	2.80	12.27
		PM_{10}	1.98	8.65
		$PM_{2.5}$	0.01	0.03
56-61-16	Expansion HP Flare	VOC	0.02	0.07
		NO_x	0.04	0.17
		CO	0.19	0.85
		SO_2	0.01	0.04
Unit 25.2 - Distillate Hydrotreater Unit				
25.2-0-0	DHT Unit Fugitives (5)	VOC	1.02	4.49
		Benzene	<0.01	<0.01
		H_2S	<0.01	<0.01
25.2-CS	Reactor Charge Heater	VOC	0.34	1.40
		NO_x (6)	10.08	41.53
		CO	4.54	18.69
		SO_2 (6)	1.66	6.82
		PM (6)	0.47	1.93
Combo Tower Reboiler		VOC	0.38	1.40
		NO_x (6)	11.36	41.53
		CO	5.11	18.69

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		SO_2 (6)	1.87	6.82
		PM (6)	0.53	1.93
Unit 26.1 Cat Feed Hydrotreater				
26-CS	ARDS Charge Heater 1	VOC	0.72	2.44
		NO_x (6)	16.08	54.23
		CO	9.65	17.72
		SO_2 (6)	3.52	11.88
		PM (6)	1.00	3.37
	ARDS Charge Heater 2	VOC	0.72	2.44
		NO_x (6)	13.40	45.19
		CO	9.65	17.72
		SO_2 (6)	3.52	11.88
		PM (6)	1.00	3.37
(26-CS continued)	Recycle Heater 1	VOC	0.23	0.95
		NO_x (6)	4.20	17.68
		CO	3.02	10.57
		SO_2 (6)	1.10	4.65
		PM (6)	0.31	1.32
	Recycle Heater 2	VOC	0.23	0.95
		NO_x (6)	4.20	17.68
		CO	3.02	10.57
		SO_2 (6)	1.10	4.65
		PM (6)	0.31	1.32
26.1-0-0	CFHT Fugitives (5)	VOC	3.68	16.14
		Benzene	<0.01	0.01
		H_2S	0.06	0.27
Unit 26.2 Hydrogen Purification Unit				
26.2-0-0	HPU Fugitives (5)	VOC	4.92	21.56
		Benzene	<0.01	<0.01
		H_2S	0.06	0.26
Unit 27 - Fluid Catalytic Cracking Unit				
27.1-0-0	FCC Fugitives (5)	VOC	2.18	9.57
		Benzene	<0.01	0.02
		H_2S	<0.01	0.02

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27.1-36-RE	FCC Regenerator Exhaust	VOC	6.16	26.98
		NO_x (6)	261.99	114.75
		CO	508.21	1059.56
		SO_2 (6)	547.21	199.73
		PM_{10} (6)	87.99	385.38
		H_2SO_4	22.03	96.49
		NH_3	4.84	21.20
27.2-0-0	FCC Gas Plant Fugitives (5)	VOC	1.64	7.17
		Benzene	<0.01	<0.01
56-61-17	Expansion LP Flare	VOC	0.10	0.46
		NO_x	0.05	0.23
		CO	0.45	1.96
		SO_2	0.37	1.60
Unit 28 and Unit 39.1 - Sulfur Recovery Units				
28.1-0-0	ARU/SWS Fugitives (5)	VOC	1.18	5.18
		Benzene	<0.01	0.01
		H_2S	0.15	0.64
		NH_3	0.09	0.39
28.1-61-9	DEA Stripper Flare	VOC	0.04	0.17
		NO_x	0.04	0.17
		CO	0.34	1.47
		SO_2	0.01	0.04
		H_2S	<0.01	<0.01
28.1-61-10	Sour Water Stripper Flare	VOC	0.02	0.08
		NO_x	0.04	0.17
		CO	0.34	1.47
		SO_2	0.01	0.04
		H_2S	<0.01	<0.01
28.2-0-0	SRU Fugitives (5)	VOC	0.75	3.29
		Benzene	<0.01	<0.01
		H_2S	0.01	0.05
		NH_3	0.23	0.99
28.2-36-2	Unit 28 Incinerator Stack	VOC	0.93	4.09
		NO_x (6)	8.13	35.62

Emission Sources - Maximum Allowable Emission Rates

		CO	20.03	87.72
		SO_2 (6)	114.45	501.27
		PM_{10} (6)	3.83	16.78
		H_2SO_4 (6)	1.33	5.83
		H_2S	2.43	10.65
39.1-95-118	Unit 39.1 Incinerator Stack	VOC	0.24	1.04
		NO_x (6)	2.37	10.37
		CO	8.95	39.22
		SO_2 (6)	51.17	224.12
		PM_{10} (6)	1.24	5.43
		H_2SO_4 (6)	0.66	2.89
		H_2S	1.09	4.76
28.2-36-2 and 39.1-95-118 Combined Emissions	Unit 28 and Unit 39.1 Incinerator Stacks	VOC		4.09
		NO_x (6)		35.62
		CO		87.72
		SO_2 (6)		501.27
		PM_{10} (6)		16.78
		H_2SO_4 (6)		5.83
		H_2S		10.65
28-95-300	DEA Tank	VOC	0.05	0.01
28-95-316	Sour Water Surge Tank 316	VOC	0.15	0.02
		Benzene	<0.01	<0.01
		H_2S	1.56	0.17
		NH_3	1.04	0.11
68-95-91	Sour Water Surge Tank 91	VOC	2.59	9.03
		Benzene	<0.01	0.03
		H_2S	0.02	0.07
		NH_3	0.01	0.05
68-95-97	Sour Water Surge Tank 97	VOC	1.79	6.28
		Benzene	<0.01	0.02
		H_2S	0.01	0.05
		NH_3	0.01	0.03
28-95-306	MDEA Tank	VOC	0.02	<0.01
39.1-0-0	Piping Fugitives (5)	VOC	0.40	1.76

Emission Sources - Maximum Allowable Emission Rates

		Benzene	<0.01	<0.01
		H_2S	0.45	1.96
		NH_3	0.09	0.39
39.1-95-114	MDEA Tank	VOC	0.06	<0.01
39.1-95-121	Process Sewer Sump	VOC	<0.01	0.01
39.1-X-X	Cooling Tower No. X	VOC	0.11	0.46
		PM	0.13	0.55
		PM_{10}	0.09	0.39
		$PM_{2.5}$	<0.01	<0.01
Unit 29.1 - Vacuum Unit				
29-61-1	Flare	VOC	0.17	0.73
		NO_x	0.16	0.68
		CO	0.79	3.48
		SO_2	0.47	2.07
		H_2S	<0.01	<0.01
29.1-0-0	Vacuum Fugitives (5)	VOC	1.84	8.04
		Benzene	<0.01	<0.01
		H_2S	<0.01	<0.01
29.1-36-001	Vacuum Unit Heater	VOC	2.04	7.13
		NO_x	22.65	79.37
		CO	27.18	51.88
		SO_2	8.00	28.05
		PM	2.81	9.86
54-22-20	Cooling Tower No. 20 (5)	VOC	1.18	5.17
		PM	1.41	6.16
		PM_{10}	0.99	4.34
		$PM_{2.5}$	<0.01	0.01
Unit 29.2 - Delayed Coker				
29.2-0-0	Coker Fugitives (5)	VOC	5.58	24.43
		Benzene	<0.01	<0.01
		H_2S	0.03	0.12

Emission Sources - Maximum Allowable Emission Rates

29.2-0-1	Coke Handling Fugitives (5)	PM	1.95	2.23
29.2-36-CS	Coker Heater A	VOC	1.46	4.96
		NO_x	16.20	54.18
		CO	9.89	33.71
		SO_2	5.27	17.96
		PM	2.01	6.85
		PM_{10}	2.01	6.85
		$PM_{2.5}$	2.01	6.85
29.2-36-CS	Coker Heater B	VOC	1.46	4.96
		NO_x	16.20	54.18
		CO	9.89	33.71
		SO_2	5.27	17.96
		PM	2.01	6.85
		PM_{10}	2.01	6.85
		$PM_{2.5}$	2.01	6.85
29.2-CDC-0	Coke Drum Cutting Fugitives	VOC	14.62	8.01
		H_2S	3.21	1.76
29.2-CDW-0	Coke Drum Water Fugitives	VOC	5.25	7.19
29.2-V-CAP	Coker Drum Cap (7)	VOC	166.90	44.52
		PM	36.20	9.65
		PM_{10}	36.20	9.65
		$PM_{2.5}$	36.20	9.65
		H_2S	36.20	9.76
29.2-V-CAP	Coker Drum Cap (8)	VOC	19.43	10.64
		PM	4.21	2.31
		PM_{10}	4.21	2.31
		$PM_{2.5}$	4.21	2.31
		H_2S	4.26	2.33
Storage Tanks				
68-95-98	Cat. Gasoline Storage Tank	VOC	2.57	10.74
68-95-99A	Gas Oil Storage Tank	VOC	34.35	6.85

Emission Sources - Maximum Allowable Emission Rates

68-95-99B	Gas Oil Storage Tank	VOC	16.95	6.85
68-95-99C	Gas Oil Storage Tank	VOC	36.00	6.85
68-95-213	Alkylate Storage Tank	VOC	1.56	6.79
68-95-228	Gasoline Storage Tank	VOC	1.03	2.47
68-95-246	DAC Storage Tank	VOC	0.32	1.31
68-95-418	Gas Oil Storage Tank	VOC	36.00	14.66
68-95-419	Gas Oil Storage Tank	VOC	34.35	14.66
68-95-401	Storage Tank 401	VOC	0.16	0.43
29-95-439	Storage Tank 439	VOC	0.24	0.44
Miscellaneous Fugitive Areas				
3-0-0	Unit 3 Fugitives (5)	VOC	2.60	11.38
		Benzene	<0.01	0.01
		H_2S	<0.01	<0.01
4-0-0	Unit 4 Fugitives (5)	VOC	2.47	10.84
		Benzene	<0.01	<0.01
		H_2S	<0.01	<0.01
5-0-0	Unit 5 Fugitives (5)	VOC	1.50	6.59
		Benzene	<0.01	<0.01
8-0-0	Unit 8 Fugitives (5)	VOC	0.46	2.00
		Benzene	<0.01	<0.01
		H_2S	<0.01	<0.01
15-0-0	Unit 15 Fugitives (5)	VOC	3.94	17.27
		Benzene	0.06	0.26
20-0-0	Unit 20 Fugitives (5)	VOC	2.58	11.28
		Benzene	<0.01	0.03
68.1-0-0	Refinery Tank Farm Fugitives (5)	VOC	8.41	38.65
		Benzene	0.11	0.49
		H_2S	<0.01	<0.01
68.2-0-2	Refinery Tank Farm Fugitives (5)	VOC	3.02	13.25
		Benzene	0.12	0.53

Emission Sources - Maximum Allowable Emission Rates

		H_2S	<0.01	<0.01
BASELINE EMISSIONS FOR EPNS LISTED IN TABLE 1				
		VOC		776.38
		NO_x		1775.10
		CO		1417.60
		PM		755.70

(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 - total particulate matter, suspended in the atmosphere, including PM_{10} and $PM_{2.5}$, as represented
PM_{10} - 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
H_2S - hydrogen sulfide
NH_3 - ammonia
H_2SO_4 - sulfuric acid mist
(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) Emissions are covered under PSD-TX-103M4.
(7) Before installation of the ejector system.
(8) After installation of the ejector system.

Date: July 11, 2016