Emission Sources - Maximum Allowable Emission Rates

Permit Number 6825A, PSDTX49, and N65

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**
Emission Caps (11)				
		SO_2	771.9	1,977 (12)
		SO_2	705.4 (12)	1,503 (6) (12)
		NO_x	885.8	3,191 (12)
		NO_x	859.9	1,611 (6) (12)
		CO	1207	3,780 (12)
		CO	1174	2,950 (6) (12)
		PM	132.6	538
		PM	120.8	455.0 (6)
		Ammonia	0.10	0.20
		Ammonia (5)	1.43	4.87
		Ammonia (6)	2.66	8.99
		H_2S	4.64	11.40
		Benzene	2.77	9.39
		HF	0.33	1.64
		MTBE	12.11	27.89
		VOC	564	1,592
		VOC (14)	562.2	1,557
		VOC (18)		1,729

Emission Sources - Maximum Allowable Emission Rates

Emissions not in permit emission caps:				
BH15MSS	Burner Installation (15)	NO_x	130.50	1.44
		CO	283.10	3.11
E-01-1241	Heater 1241-H1 MSS	VOC	0.10	0.40
		NO_x	0.20	0.90
		SO_2	0.01	0.01
		CO	0.20	0.90
		PM	0.10	0.40
E-02-1241	Heater 1241-H2 MSS	VOC	0.10	0.40
		NO_x	0.20	0.90
		SO_2	0.01	0.01
		CO	0.20	0.90
		PM	0.10	0.40
E-01-245	Heater 245	NO_x	1.44	6.31
		VOC	0.18	0.77
		SO_2	0.85	3.73
		CO	2.48	10.84
		PM	0.24	1.07
E-V54	CCR Regen Vent	HCl	0.02	0.07
		VOC	0.16	0.70
F-20-Flare	Flare 20 MSS	VOC	0.06	0.28
		NO_x	0.87	3.81
		SO_2	0.80	3.50
		CO	2.40	10.50
F-PIPE	F-PIPE	VOC	0.18	0.78
F-943, F-7843, F-	COEXII VOC Cap (9)	VOC	37.92	108.25

Emission Sources - Maximum Allowable Emission Rates

7945, F-8748-SWS, E-26-FLARE, T-CX2-SW-2, T-CX2-CRUDE-1, T-CX2-CRUDE-2, T-CX2-NAPTH-1, T-CX2-GASOL-1, T-CX2-GASOL-2, T-2186, T-CX2-RESID-1, T-CX2-RESID-2, T-CX2-Amine-1, T-CX2-Amine-2, E-01-943, E-02-943, F-432-CT, F-446CT				
1913FUG	Tank 1913 Fugitives (4) (17)	VOC	0.02	0.09
1913	Tank 1913 (17)	VOC	0.32	1.41
T-82	Tank 82	VOC	0.62	0.15
T-283	Tank 283	VOC	6.62	3.05
T-284	Tank 284	VOC	6.62	3.05
T-285	Tank 285	VOC	6.62	3.05
T-106	Tank 106	VOC	8.99	2.70
T-107	Tank 107	VOC	9.01	2.73
T-100	Tank 100	VOC	42.70	2.98
T-103	Tank 103	VOC	31.80	2.98
T-110	Tank 110	VOC	7.26	2.48
T-926	Tank 926	VOC	2.98	6.89
T-1848	Tank 1848	VOC	1.26	0.30
T-2164	Tank 2164	VOC	34.28	10.97
T-2163	Tank 2163	VOC	34.28	10.97

Emission Sources - Maximum Allowable Emission Rates

T-2105	Tank 2105	VOC	36.04	7.55
T-99	Tank 99	VOC	26.97	2.98
T-111	Tank 111	VOC	7.26	2.48
T-2162	Tank 2162	VOC	2.06	1.11
T-896	Tank 896	VOC	2.75	7.26
T-1849	Tank 1849	VOC	1.68	2.30
T-2133	Tank 2133	VOC	4.53	11.15
F-136ACT	Cooling Tower 136A	PM	0.73	2.14
		PM_{10}	0.73	2.14
		$PM_{2.5}$	0.73	2.14
F-136BCT	Cooling Tower 136B	PM	0.74	2.17
		PM_{10}	0.74	2.17
		$PM_{2.5}$	0.74	2.17
F-366CT	Cooling Tower 366	PM	0.56	1.64
		PM_{10}	0.56	1.64
		$PM_{2.5}$	0.56	1.64
Emissions in permit emission caps:				
E-01-BH 15	Boiler 15-41, Pre-mod. (7)	NO_x	26.10	114.32
		VOC	2.35	9.97
		SO_2	19.58	21.63
		CO	35.82	72.33
		PM	3.05	13.34
E-02-BH 15, E-03-BH 15, E-04-BH 15	Boilerhouse 15 Subcap, Pre-mod (7)	NO_x	213.56	314.3
		VOC	12.30	26.99
		SO_2	129.01	211.9

Emission Sources - Maximum Allowable Emission Rates

		CO	101.29	222.21
		PM	8.62	37.78
E-01-BH 15, E-02-BH 15, E-03-BH 15	Boilerhouse 15 Subcap, Post-mod Phase I (8)	NO_x	78.03	247.5
		VOC	7.05	22.27
		SO_2	58.74	37.12
		CO	107.46	169.9
		PM	9.15	31.09
E-01-BH 15, E-02-BH 15, E-03-BH 15	Boilerhouse 15 Subcap Post-mod PhaseII (13)	NO_x	78.03	339.0
		VOC	7.05	30.51
		SO_2	58.74	50.85
		CO	107.46	232.8
		PM	9.15	31.09
E-06-BH 16	Boiler 16-34 (10)	NO_x (16)	6.50	28.60
E-07-BH 16	Boiler 16-35 (10)	NO_x (16)	9.00	39.40
E-08-BH 16	Boiler 16-36 (10)	NO_x (16)	42.00	72.67
E-06-BH 16, E-07-BH 16, E-08-BH 16	Boilerhouse 16 Subcap (10)	NO_x	200.41	414.5
		VOC	12.55	27.49
		SO_2	98.37	161.58
		CO	103.35	226.36
		PM	8.79	38.49
E-01-146	Heater 146-H101	NO_x	49.56	146.99
		VOC	3.34	12.18
		SO_2	11.36	18.67
		CO	48.78	67.14
		PM	4.34	16.83

Emission Sources - Maximum Allowable Emission Rates

E-02-146	Heater 146-H102AB	NO_x	19.88	52.36
		VOC	1.60	5.04
		SO_2	5.43	8.92
		CO	19.59	27.76
		PM	2.08	6.96
E-01-147	Heater 147-F-1100	NO_x	13.86	60.71
		VOC	2.14	9.35
		SO_2	10.59	17.39
		CO	32.61	68.93
		PM	2.77	12.14
E-02-147	Heater 147-F-1200	NO_x	7.80	17.28
		VOC	0.92	3.29
		SO_2	4.10	5.66
		CO	10.89	19.25
		PM	1.28	5.60
		PM_{10}	1.28	5.60
		$PM_{2.5}$	1.28	5.60
E-01-1344	Heater 1344-H1	NO_x	34.09	115.39
		VOC	3.65	14.80
		SO_2	11.95	19.64
		CO	40.45	82.24
		PM	5.05	20.45
E-02-1344	Heater 1344-H33	NO_x	3.82	9.06
		VOC	0.28	1.22
		SO_2	0.85	1.39

Emission Sources - Maximum Allowable Emission Rates

		CO	4.26	9.33
		PM	0.36	1.59
E-03-1344	Heater 1344-H2_3_32	NO_x	12.80	42.05
		VOC	0.86	2.41
		SO_2	2.89	4.75
		CO	10.64	13.43
		PM	1.12	3.33
E-01-843	Heater 843-H1	NO_x	16.00	53.40
		VOC	1.44	5.42
		SO_2	6.79	9.32
		CO	21.96	31.76
		PM	1.87	7.50
E-02-843	Heater 843-H2	NO_x	16.00	53.40
		VOC	1.44	5.42
		SO_2	6.79	9.32
		CO	21.96	31.76
		PM	1.87	7.50
E-03-843	Heater 843-H3	NO_x	16.00	53.40
		VOC	1.44	5.42
		SO_2	6.79	9.32
		CO	21.96	31.76
		PM	1.87	7.50
E-01-246	Heater 246-H1	NO_x	2.20	7.51
		VOC	0.34	1.06
		SO_2	1.44	1.86

Emission Sources - Maximum Allowable Emission Rates

		CO	4.07	6.19
		PM	0.47	1.47
E-01-1241	Heater 1241-H1	NO_x	4.96	1.24
		VOC	0.33	0.08
		SO_2	1.64	0.15
		CO	4.86	0.64
		PM	0.43	0.11
E-02-1241	Heater 1241-H2	NO_x	4.96	1.24
		VOC	0.33	0.08
		SO_2	1.64	0.15
		CO	4.86	0.64
		PM	0.43	0.11
E-01-241	Heater 241-B101AB	NO_x	7.92	19.51
		VOC	0.53	2.34
		SO_2	2.23	3.66
		CO	8.15	13.49
		PM	0.69	3.04
E-01-242	Heater 242-B201AB	NO_x	6.62	23.91
		VOC	0.36	1.58
		SO_2	1.87	3.11
		CO	4.04	11.91
		PM	0.50	2.00
E-01-243	Heater 243	NO_x	7.10	19.43
		VOC	0.48	1.87
		SO_2	1.78	2.92

Emission Sources - Maximum Allowable Emission Rates

		CO	6.74	10.31
		PM	0.62	2.58
E-01-244	Heater 244 F-101/102	NO_x	7.92	34.70
		VOC	0.36	1.60
		SO_2	1.90	3.11
		CO	5.13	11.91
		PM	0.46	2.00
E-01-942	Heater 942-H1_2_3	NO_x	12.83	45.56
		VOC	1.15	4.55
		SO_2	5.45	7.98
		CO	17.61	26.75
		PM	1.50	6.29
E-01-443	Heater 443	NO_x	24.29	42.83
		VOC	1.09	3.88
		SO_2	3.34	5.49
		CO	16.67	21.44
		PM	1.42	5.35
REFFUG Includes: F-1241, F-1242, F-1344, F-146, F-147, F-15BH, F-16BH, F-241, F-242, F-243, F-244, F-245, F-246, F-443, F-545, F-546, F-6341, F-7542, F-7841, F-7842, F-7848, F-843, F-8746, F-8747, F-942, FUAUCT, F-DOCKS, F-544, F-Fueling	Refinery Fugitives VOC Subcap (4)	VOC	220.06	960.41

Emission Sources - Maximum Allowable Emission Rates

Station, F-163PH, F-41PH, F-FGMD, F-SRTF, F-Utilities, F-8741, F-543/4, F-NSTF, F-BH-19, F-7843, and F-943-75K				
100, 103, 106, 107, 110, 111, 133, 151, 1848, 1849, 2101, 2105, 2106, 2110, 2111, 2112, 2113, 2117, 2132, 2133, 2137, 2145, 2147, 2148, 2159, 2160, 2161, 2162, 2163, 2164, 2182, 2183, 2588, 2590, 283, 284, 285, 31, 5, 77, 78, 82, 88, 889, 896, 925, 926, 99, T-108, T-109, T-546-1, T-546-2, T-7842-1, T-7842-2	Refinery Tank Subcap	VOC	218.7	153.3
E-05-FLARE, F-13-FLARE, F-15-FLARE, F-18-FLARE, F-19-FLARE, F-20-FLARE, F-22-FLARE, E-23-FLARE, F-103-FLARE	Flares Subcap	NO_x	43.93	48.03
		VOC	65.74	85.10
		SO_2	24.87	13.57
		CO	302.8	309.3
E-05-FLARE, F-13-FLARE, F-15-FLARE, F-18-FLARE, F-19-FLARE, F-20-FLARE, F-22-FLARE, E-23-FLARE, F-103-FLARE	Flares Subcap (14)	NO_x	43.93	38.67
		VOC	65.74	57.86
		SO_2	24.87	8.11

Emission Sources - Maximum Allowable Emission Rates

		CO	302.8	266.5
E-01-SCOT, E-02-SCOT, E-03-SCOT, E-04-SCOT	SRUs Subcap	NO_x	49.68	118.40
		VOC	64.24	151.90
		SO_2	345.83	1056.82
		CO	192.20	896.29
		PM	24.58	58.60
E-01-SCOT	SRU 543	SO_2	57.90	
E-02-SCOT	SRU 544	SO_2	82.77	
E-03-SCOT	SRU 545	SO_2	137.89	
E-04-SCOT	SRU 546	SO_2	137.89	
E-06-843	Two Tank Heaters for Charge Tanks	NO_x	1.18	5.15
		VOC	0.06	0.28
		SO_2	0.31	0.51
		CO	1.02	4.47
		PM	0.09	0.39
E-01-943	HCU - Reactor 1 and Reactor 2 Furnaces	NO_x	7.81	28.51
		SO_2	8.20	11.23
		CO	14.93	27.27
		PM	1.66	6.07
		PM_{10}	1.66	6.07
		$PM_{2.5}$	1.66	6.07

Emission Sources - Maximum Allowable Emission Rates

E-02-943	HCU - Fractionator Feed Furnace	NO_x	5.22	19.05
		SO_2	12.80	17.51
		CO	23.30	42.52
		PM	3.13	10.19
		PM_{10}	3.13	10.19
		$PM_{2.5}$	3.13	10.19
		Ammonia	1.82	6.03
E-26-FLARE	HCU 943 Flare	NO_x	0.31	1.38
		SO_2	0.01	0.03
		CO	2.27	9.94
E-01-WGS	FCCU Wet Gas Scrubber	NO_x	327.70	271.93
		VOC	15.70	68.80
		SO_2	114.10	256.08
		CO	498.80	896.29
		PM	63.50	278.13
		NH_3	3.19	12.37
		HCN	89.80	347.95
		H_2SO_4	18.26	80.00
F-03-DOCK, F-02-DOCK, F-05-DOCK, F-06-DOCK, F-08-DOCK, F-07-DOCK, F-11-DOCK, F-12-DOCK, F-15-DOCK, F-14-DOCK	Marine Loading Fugitives	VOC	97.92	63.93
E-MC-24-25 (19)	DOCK-MC	NO_x	49.68	20.83
		VOC	33.19	20.08

Emission Sources - Maximum Allowable Emission Rates

		CO	99.18	41.58
		PM	2.68	1.12
		PM_{10}	2.68	1.12
		$PM_{2.5}$	2.68	1.12
		SO_2	0.19	0.07
F-101CT	Cool Twr 101	VOC	1.30	5.70
F-136ACT	Cool Twr 136A	VOC	2.73	11.96
F-136BCT	Cool Twr 136B	VOC	2.77	11.96
F-233PS	Cool Twr 233	VOC	0.53	1.24
F-314PS	Cool Twr 314	VOC	0.01	0.01
F-316PS	Cool Twr 316	VOC	0.01	0.01
F-354CT	Cool Twr 354	VOC	0.25	1.10
F-360PS	Cool Twr 360	VOC	0.92	4.05
F-363CT	Cool Twr 363	VOC	0.42	0.89
F-366CT	Cool Twr 366	VOC	2.10	2.45
CT-100	Cool Twr 100	VOC	1.05	4.60
E-432-CT	Cool Twr 432	VOC	0.84	3.68
		PM	0.01	0.02
		PM_{10}	0.01	0.02
		$PM_{2.5}$	0.01	0.02
E-433-CT	Cool Twr 433	VOC	1.26	0.69
CT0244	Cool Twr 244	VOC	1.18	5.15
F-446CT	Cooling Tower 446	PM	0.03	0.11
		PM_{10}	0.03	0.11
		$PM_{2.5}$	0.03	0.11
F843-1 to 17	Coke Handling	PM	2.41	10.27

Emission Sources - Maximum Allowable Emission Rates

		$PM_{2.5}$	0.06	0.26
F-843PM	Coke Handling Fugitives	PM	2.41	10.56

(1) Emission point identification - either specific equipment designation or emission point number (EPN) from a plot plan per Attachment 1.
(2) Specific point source names. 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
CO - carbon moNO_xide
PM - particulate matter, suspended in the atmosphere, including PM_{10} and $PM_{2.5.}$
PM_{10} - particulate matter equal to or less than 10 microns in diameter.
$PM_{2.5}$ - particulate matter equal to or less than 2.5 microns in diameter
H_2S - hydrogen sulfide
HCl - hydrogen chloride
HF - hydrogen fluoride
MTBE - methyl-tertiary-butyl ether
NH_3 - ammonia
HCN - hydrogen cyanide
H_2SO_4 - sulfuric acid

(4) Emission rate is an estimate and compliance is demonstrated by meeting the requirements of the applicable special conditions and permit application representations.
(5) Rates effective after facilities associated with COEX II Project are operating.
(6) Caps effective after sources associated with COEX II Project and EPNs E-01-19BH, E 02 19BH, and E-03-19BH are operating. Boilerhouse 15 low NO_x burner project and shutdown of Boilerhouse 16 combustion units must be complete.
(7) Allowable emission rates prior to the Boilerhouse 15 low NO_x burner project (Pre-mod).
(8) Post-mod Phase I: Allowable emission rates after the Boilerhouse 15 low NO_x burner project authorized by Standard Permit 91911. The turbine GTG-1 shall be shutdown as part of this project.
(9) These facilities were subject to nonattainment review for VOC for Permit N65. The MSS emissions associated with the COEX II facilities authorized in Permit Number 80812 must also be added to the routine emissions from the COEX II facilities to determine compliance with this annual emission cap.
(10) The Boilerhouse 16 units must be shutdown and the Boilerhouse 15 low NO_x burner project completed prior to the end of the 180 day shakedown period for Boilerhouse 19 Boilers 1, 2, and 3 {authorized by Permit 103765).
(11) These emission caps have been carried forward from the flexible permit. With the exception of VOC emissions from COEXII facilities, these caps apply to the sum total of all emissions of that pollutant from the facilities listed on Attachment I. In addition, the maintenance, startup, and shutdown (MSS) emissions authorized in Permit Number 80812 must also be added to the routine emissions from the facilities in Attachment I to determine compliance with these emission caps unless the cap is designated with a footnote (12). The emission caps that are not designated with a footnote (12) are those that are more limiting than the sum of the individual emission rate limits for those facilities. VOC MSS emissions from COEX II facilities do not need to be included when showing compliance with the annual VOC cap.
(12) These emission caps are the sum of the individual and subcap emission rates for the pollutant and are shown for information only.

Emission Sources - Maximum Allowable Emission Rates

(13) Post-mod Phase II: These allowable emission rates shall apply in lieu of those designated with footnote (8) (aka Post-mod Phase I) if the permit holder samples these facilities for $PM_{2.5}$ per Special Condition 40 after completing the Boilerhouse 15 low NO_x burner project and the results show $PM_{2.5}$ emissions are less than 73 percent of the maximum hourly total PM emission rate limit.
(14) Caps effective after start of operation of entire flare gas recovery system.
(15) Installation of low NO_x burners in Boilerhouse 15 boilers authorized by Standard Permit 91911.
(16) Installation of low NO_x burners in Boilerhouse 16 boilers authorized by Standard Permit 94365.
(17) Tank authorized by PBR Registration 84905.
(18) This emission cap applies to the sum of VOC emissions from all facilities listed in Attachment 1 and MSS activities authorized in this permit and from all facilities and MSS activities authorized in Permit 80812.
(19) Two marine vapor combustor stacks are included in EPN E-MC-24-25.

* Emission rates are based on operating 8,760 hrs/year.

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

Date: April 16, 2018