

# Emission Sources - Maximum Allowable Emission Rates

Permit Number 6825A, PSDTX49M1, 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 (4)
Emission Caps (11)				
		SO <sub>2</sub>	705.4	1,503
		NO <sub>x</sub>	859.9	1,611
		CO	1174	2,950
		PM	120.8	455.00
		Ammonia	2.66	8.99
		H <sub>2</sub> S	4.64	11.40
		Benzene	2.77	9.39
		HF	0.33	1.64
		MTBE	12.11	27.89
		VOC	562.2	1,557
		VOC (14) (18)		1,729
Emissions not in permit emission caps:				
BH15MSS	Burner Installation (15)	NO <sub>x</sub>	130.50	1.44
		CO	283.10	3.11

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E-01-245	Heater 245	NO <sub>x</sub>	1.44	6.31
		VOC	0.18	0.77
		SO <sub>2</sub>	0.85	3.73
		SO <sub>2</sub> (20)	0.85	0.96
		CO	2.48	10.84
		PM	0.26	1.07
		PM <sub>10</sub>	0.26	1.07
		PM <sub>2.5</sub>	0.26	1.07
E-V54	CCR Regen Vent	HCl	0.02	0.07
		VOC	0.16	0.70
F-PIPE	F-PIPE	VOC	0.18	0.78
F-943, F-7843, F-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	COEXII VOC Normal and Non-Tank MSS Emissions Cap (9)	VOC	37.74	107.63
1913FUG	Tank 1913 Fugitives (4)	VOC	0.02	0.09
1913	Tank 1913	VOC	0.32	1.41
T-112	112	VOC	9.49	3.50
		H <sub>2</sub> S	0.14	0.24
T-113	113	VOC	9.49	3.50
		H <sub>2</sub> S	0.14	0.24

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T-114	114	VOC	9.49	3.50
		H <sub>2</sub> S	0.14	0.24
T-8010	Coker 843 sludge tank	VOC	0.04	0.18
T-8400	Coker 844 sludge tank	VOC	0.04	0.18
T-8002	547 Sulfur Tank	H <sub>2</sub> S	0.48	0.39
T-37	Storage Tank T-37	VOC	12.18	3.89
F-136ACT	Cooling Tower 136A	PM	0.73	2.14
		PM <sub>10</sub>	0.73	2.14
		PM <sub>2.5</sub>	0.73	2.14
F-136BCT	Cooling Tower 136B	PM	0.74	2.17
		PM <sub>10</sub>	0.74	2.17
		PM <sub>2.5</sub>	0.74	2.17
F-366CT	Cooling Tower 366	PM	0.56	1.64
		PM <sub>10</sub>	0.56	1.64
		PM <sub>2.5</sub>	0.56	1.64
E-01-844	DCU 844 Coker Furnace #1	NO <sub>x</sub>	3.45	13.75
		NO <sub>x</sub> (MSS)	34.55	(22)
		VOC	1.24	4.94
		SO <sub>2</sub>	5.34	3.93
		CO	16.57	32.97
		CO (MSS)	82.83	(22)
		PM	1.84	6.99
		PM <sub>10</sub>	1.84	6.99
		PM <sub>2.5</sub>	1.84	6.99
		NH <sub>3</sub>	1.01	4.00

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E-02-844	DCU 844 Coker Furnace #2	NO <sub>x</sub>	3.45	13.75
		NO <sub>x</sub> (MSS)	34.55	(22)
		VOC	1.24	4.94
		SO <sub>2</sub>	5.34	3.93
		CO	16.57	32.97
		CO (MSS)	82.83	(22)
		PM	1.84	6.99
		PM <sub>10</sub>	1.84	6.99
		PM <sub>2.5</sub>	1.84	6.99
		NH <sub>3</sub>	1.01	4.00
F-LOADING	SRU 547 Truck Sulfur Loading	H <sub>2</sub> S	0.72	0.62
E-05-SCOT	SRU 547	VOC	0.45	1.96
		NO <sub>x</sub>	6.63	29.03
		CO	36.19	63.41
		SO <sub>2</sub>	81.46	142.72
		PM	1.23	5.41
		PM <sub>10</sub>	1.23	5.41
		PM <sub>2.5</sub>	1.23	5.41
		H <sub>2</sub> S	0.88	3.85
CSV844	Coker Unit 844 Steam Vent	VOC	55.00	35.50
		PM	1.31	0.85
		PM <sub>10</sub>	1.31	0.85
		PM <sub>2.5</sub>	1.31	0.85
		H <sub>2</sub> S	3.13	2.02
CSV843	Coker Unit 843 Steam Vent	VOC	55.00	61.38

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		PM	2.28	1.75
		PM <sub>10</sub>	2.28	1.75
		PM <sub>2.5</sub>	2.28	1.75
		H <sub>2</sub> S	5.43	4.18
F-844PM	Unit 844 coke handling (FINS F-844-1 to F-844-6)	PM	0.26	0.40
		PM <sub>10</sub>	0.12	0.19
		PM <sub>2.5</sub>	0.02	0.03
WWC	Coker 844 Wastewater Collection System	VOC	0.01	0.03
MSS (Coker Unit 844, SRU 547, E-23-Flare, E-26-Flare, T-112, T-113, T-114)	Coker 844 Project MSS (23)	VOC	542.76	5.49
		NO <sub>x</sub>	29.03	0.51
		CO	194.71	3.27
		SO <sub>2</sub>	299.15	8.97
		H <sub>2</sub> S	3.18	0.19
		PM	1.48	<0.01
		PM <sub>10</sub>	1.48	<0.01
		PM <sub>2.5</sub>	1.48	<0.01
Emissions in permit emission caps:				
E-01-BH 15, E-02-BH 15, E-03-BH 15	Boilerhouse 15 Subcap, Post-mod Phase I	NO <sub>x</sub>	78.03	247.5
		VOC	7.05	22.27
		SO <sub>2</sub>	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 Phase II (13)	NO <sub>x</sub>	78.03	339.0
		VOC	7.05	30.51

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		SO <sub>2</sub>	58.74	50.85
		CO	107.46	232.8
		PM	9.15	31.09
E-01-146	Heater 146-H101	NO <sub>x</sub>	49.56	146.99
		VOC	3.34	12.18
		SO <sub>2</sub>	11.36	18.67
		CO	48.78	67.14
		PM	4.34	16.83
		NO <sub>x</sub> (20)	36.85	149.66
		VOC (20)	2.97	12.05
		SO <sub>2</sub> (20)	19.73	14.84
		CO (20)	37.22	75.58
		CO (MSS) (20)	87.97	(22)
		PM (20)	4.10	16.64
		PM <sub>10</sub> (20)	4.10	16.64
		PM <sub>2.5</sub> (20)	4.10	16.64

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E-02-146	Heater 146-H102AB	NO <sub>x</sub>	19.88	52.36
		VOC	1.60	5.04
		SO <sub>2</sub>	5.43	8.92
		CO	19.59	27.76
		PM	2.08	6.96
		NO <sub>x</sub> (20)	16.12	70.61
		VOC (20)	1.40	6.14
		SO <sub>2</sub> (20)	9.33	7.57
		CO (20)	17.59	38.53
		CO (MSS) (20)	87.97	(22)
		PM (20)	1.94	8.49
		PM <sub>10</sub> (20)	1.94	8.49
		PM <sub>2.5</sub> (20)	1.94	8.49
E-01-147	Heater 147-F-1100	NO <sub>x</sub>	13.86	60.71
		VOC	2.14	9.35
		SO <sub>2</sub>	10.59	17.39
		SO <sub>2</sub> (20)	10.59	7.58
		CO	32.61	68.93
		PM	2.95	12.92
		PM <sub>10</sub>	2.95	12.92
		PM <sub>2.5</sub>	2.95	12.92
E-02-147	Heater 147-F-1200	NO <sub>x</sub>	7.80	17.28
		VOC	0.92	3.29
		SO <sub>2</sub>	4.10	5.66
		SO <sub>2</sub> (20)	4.10	3.29

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		CO	10.89	19.25
		PM	1.28	5.60
		PM <sub>10</sub>	1.28	5.60
		PM <sub>2.5</sub>	1.28	5.60
E-01-1344	Heater 1344-H1	NO <sub>x</sub>	34.09	115.39
		VOC	3.65	14.80
		SO <sub>2</sub>	11.95	19.64
		SO <sub>2</sub> (20)	11.95	18.53
		CO	40.45	82.24
		PM	5.05	20.45
		PM <sub>10</sub>	5.05	20.45
		PM <sub>2.5</sub>	5.05	20.45
E-02-1344	Heater 1344-H33	NO <sub>x</sub>	3.82	9.06
		VOC	0.28	1.22
		SO <sub>2</sub>	0.85	1.39
		CO	4.26	9.33
		PM	0.38	1.69
		PM <sub>10</sub>	0.38	1.69
		PM <sub>2.5</sub>	0.38	1.69
E-03-1344	Heater 1344-H2_3_32	NO <sub>x</sub>	12.80	26.81
		VOC	0.86	2.41
		SO <sub>2</sub>	2.89	4.75
		SO <sub>2</sub> (20)	2.89	3.02
		CO	10.64	13.43
		PM	1.19	3.33



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		PM <sub>10</sub>	1.19	3.33
		PM <sub>2.5</sub>	1.19	3.33
E-01-843	Heater 843-H1	NO <sub>x</sub>	16.00	53.40
		VOC	1.44	5.42
		SO <sub>2</sub>	6.79	9.32
		SO <sub>2</sub> (20)	6.79	4.38
		CO	21.96	31.76
		PM	1.99	7.50
		PM <sub>10</sub>	1.99	7.50
		PM <sub>2.5</sub>	1.99	7.50
E-02-843	Heater 843-H2	NO <sub>x</sub>	16.00	53.40
		VOC	1.44	5.42
		SO <sub>2</sub>	6.79	9.32
		SO <sub>2</sub> (20)	6.79	4.38
		CO	21.96	31.76
		PM	1.99	7.50
		PM <sub>10</sub>	1.99	7.50
		PM <sub>2.5</sub>	1.99	7.50
E-03-843	Heater 843-H3	NO <sub>x</sub>	16.00	53.40
		VOC	1.44	5.42
		SO <sub>2</sub>	6.79	9.32
		SO <sub>2</sub> (20)	6.79	4.38
		CO	21.96	31.76
		PM	1.99	7.50
		PM <sub>10</sub>	1.99	7.50

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		PM <sub>2.5</sub>	1.99	7.50
E-01-246	Heater 246-H1	NO <sub>x</sub>	2.20	7.51
		VOC	0.34	1.06
		SO <sub>2</sub>	1.44	1.86
		SO <sub>2</sub> (20)	1.44	0.88
		CO	4.07	6.19
		PM	0.47	1.47
		PM <sub>10</sub>	0.47	1.47
		PM <sub>2.5</sub>	0.47	1.47
E-01-1241	Heater 1241-H1	NO <sub>x</sub>	4.96	1.24
		VOC	0.33	0.08
		SO <sub>2</sub>	1.64	0.15
		CO	4.86	0.64
		PM	0.43	0.11
E-02-1241	Heater 1241-H2	NO <sub>x</sub>	4.96	1.24
		VOC	0.33	0.08
		SO <sub>2</sub>	1.64	0.15
		CO	4.86	0.64
		PM	0.43	0.11

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E-01-241	Heater 241-B101AB	NO <sub>x</sub>	7.92	19.51
		VOC	0.53	2.34
		SO <sub>2</sub>	2.23	3.66
		SO <sub>2</sub> (20)	2.23	2.93
		CO	8.15	13.49
		PM	0.73	3.24
		PM <sub>10</sub>	0.73	3.24
		PM <sub>2.5</sub>	0.73	3.24
E-01-242	Heater 242-B201AB	NO <sub>x</sub>	6.62	17.45
		VOC	0.36	1.58
		SO <sub>2</sub>	1.87	3.11
		SO <sub>2</sub> (20)	1.87	1.80
		CO	4.04	11.91
		PM	0.50	2.00
		PM <sub>10</sub>	0.50	2.00
		PM <sub>2.5</sub>	0.50	2.00
E-01-243	Heater 243	NO <sub>x</sub>	7.10	19.43
		VOC	0.48	1.87
		SO <sub>2</sub>	1.78	2.92
		SO <sub>2</sub> (20)	1.78	2.32
		CO	6.74	10.31
		PM	0.66	2.58
		PM <sub>10</sub>	0.66	2.58
		PM <sub>2.5</sub>	0.66	2.58
E-01-244	Heater 244 F-101/102	NO <sub>x</sub>	7.92	34.70

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		VOC	0.36	1.60
		SO <sub>2</sub>	1.90	3.11
		SO <sub>2</sub> (20)	1.90	1.80
		CO	5.13	11.91
		PM	0.49	2.00
		PM <sub>10</sub>	0.49	2.00
		PM <sub>2.5</sub>	0.49	2.00
E-01-942	Heater 942-H1_2_3	NO <sub>x</sub>	12.83	45.56
		VOC	1.15	4.55
		SO <sub>2</sub>	5.45	7.98
		SO <sub>2</sub> (20)	5.45	3.68
		CO	17.61	26.75
		PM	1.60	6.29
		PM <sub>10</sub>	1.60	6.29
		PM <sub>2.5</sub>	1.60	6.29
E-01-443	Heater 443	NO <sub>x</sub>	14.20	42.83
		VOC	1.09	3.88
		SO <sub>2</sub>	3.34	5.49
		SO <sub>2</sub> (20)	3.34	4.86
		CO	16.67	21.44
		PM	1.51	5.35
		PM <sub>10</sub>	1.51	5.35
		PM <sub>2.5</sub>	1.51	5.35

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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-547, F-6341, F-7542, F-7841, F-7842, F-7848, F-843, F-844, F-8746, F-8747, F-942, FUAUCT, F-DOCKS, F-544, F-Fueling Station, F-163PH, F-41PH, F-FGMD, F-SRTF, F-Utilities, F-8741, F-543/4, F-NSTF, F-BH-19, F-7843, F-943-75K, F-844, F-547, F-1747	Refinery Fugitives VOC Subcap (4)	VOC	255.13	1113.72
		H <sub>2</sub> S	5.49	24.05
		NH <sub>3</sub>	1.47	5.06
		HF	0.36	1.75
2147, 2588, 2590, 78, 88, T-546-1, T-546-2, T-7842-1, T-7842-2	Refinery Tank Subcap	VOC	3.94	4.00
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 <sub>x</sub>	43.93	38.67
		VOC	65.74	57.86
		SO <sub>2</sub>	24.87	8.11
		CO	302.80	266.50
		H <sub>2</sub> S	0.26	0.09
E-18-FLARE	Flare - Normal Operations	NO <sub>x</sub>	0.01	0.06
		CO	0.10	0.46
		SO <sub>2</sub>	0.01	0.02
		VOC	0.09	0.41

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F-DOCK	Uncontrolled Marine Loading 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-14-DOCK, F-15-DOCK	VOC	97.92	63.93
E-01-SCOT, E-02-SCOT, E-03-SCOT, E-04-SCOT	SRUs Subcap	NO <sub>x</sub>	49.68	118.40
		VOC	64.24	151.90
		SO <sub>2</sub>	345.83	1056.82
		CO	192.20	896.29
		PM	24.58	58.60
		PM <sub>10</sub>	24.58	58.60
		PM <sub>2.5</sub>	24.58	58.60
		H <sub>2</sub> S	3.67	11.23
E-01-SCOT	SRU 543	SO <sub>2</sub>	57.90	--
		H <sub>2</sub> S	0.62	--
E-02-SCOT	SRU 544	SO <sub>2</sub>	82.77	--
		H <sub>2</sub> S	0.88	--
E-03-SCOT	SRU 545	SO <sub>2</sub>	137.89	--
		H <sub>2</sub> S	1.47	--
E-04-SCOT	SRU 546	SO <sub>2</sub>	137.89	--
		H <sub>2</sub> S	1.47	--
E-02-SRK	SRU 543 and 544 sulfur loading	H <sub>2</sub> S	0.36	0.28
E-01-943	HCU - Reactor 1 and Reactor 2 Furnaces	NO <sub>x</sub>	7.81	28.51
		VOC (19)	0.60	2.20
		SO <sub>2</sub>	8.20	11.23

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		SO <sub>2</sub> (20)	8.20	5.87
		CO	14.93	27.27
		PM	1.66	6.07
		PM <sub>10</sub>	1.66	6.07
		PM <sub>2.5</sub>	1.66	6.07
E-02-943	HCU - Fractionator Feed Furnace	NO <sub>x</sub>	5.22	22.86
		NO <sub>x</sub> (Start-up)	52.20	(22)
		VOC (19)	1.88	8.22
		SO <sub>2</sub>	13.31	17.51
		SO <sub>2</sub> (20)	13.31	10.79
		CO	23.27	50.97
		CO (Start-up)	116.37	(22)
		PM	2.90	11.81
		PM <sub>10</sub>	2.90	11.81
		PM <sub>2.5</sub>	2.90	11.81
		Ammonia	1.41	6.19
E-26-FLARE	HCU 943 Flare	NO <sub>x</sub>	0.31	1.38
		SO <sub>2</sub>	0.01	0.03
		CO	2.27	9.94

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E-01-WGS	FCCU Wet Gas Scrubber	NO <sub>x</sub>	327.70	271.93
		VOC	15.70	68.80
		SO <sub>2</sub>	114.10	256.08
		CO	498.80	896.29
		PM	63.50	278.13
		NH <sub>3</sub>	3.19	12.37
		HCN	89.80	347.95
		H <sub>2</sub> SO <sub>4</sub>	18.26	80.00
E-MC-24-25	DOCK-MC (24)	NO <sub>x</sub>	49.68	20.83
		VOC	33.19	20.08
		CO	99.18	41.58
		SO <sub>2</sub>	0.19	0.07
		PM	2.68	1.12
		PM <sub>10</sub>	2.68	1.12
		PM <sub>2.5</sub>	2.68	1.12
E-MC-24-25	Marine Vapor Combustors 24 and 25 (26)	NO <sub>x</sub>	3.30	0.37
		VOC	34.95	2.82
		CO	23.83	2.65
		SO <sub>2</sub>	1.68	0.09
		PM	0.44	0.05
		PM <sub>10</sub>	0.44	0.05
		PM <sub>2.5</sub>	0.44	0.05
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



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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 <sub>10</sub>	0.01	0.02
		PM <sub>2.5</sub>	0.01	0.02
E-433-CT	Cool Twr 433	VOC	1.26	0.69
		VOC (20)	1.89	8.28
		PM (20)	0.56	1.97
		PM <sub>10</sub> (20)	0.56	1.95
		PM <sub>2.5</sub> (20)	0.13	0.44
CT-244	Cool Twr 244	VOC	1.18	5.15
		VOC (20)	1.60	6.99
		PM (20)	0.48	6.99
		PM <sub>10</sub> (20)	0.47	1.64
		PM <sub>2.5</sub> (20)	0.11	0.37

Emission Sources - Maximum Allowable Emission Rates

F-446CT	Cooling Tower 446	PM	0.03	0.11
		PM <sub>10</sub>	0.03	0.11
		PM <sub>2.5</sub>	0.03	0.11
		VOC (19)(20)	1.99	8.72
		PM (20)	0.59	8.72
		PM <sub>10</sub> (20)	0.59	2.05
		PM <sub>2.5</sub> (20)	0.13	0.47
F-843PM	Unit 843 coke storage and loading (FINS F-843-1 to F-843-17)	PM	2.41	10.56
		PM <sub>2.5</sub>	0.06	0.26
		PM (20)	5.17	8.71
		PM <sub>10</sub> (20)	2.48	4.26
		PM <sub>2.5</sub> (20)	0.37	0.63
MSS Non-Tank Sub-Cap	Non-Tank-Related Plant-Wide Planned Maintenance, Startup, and Shutdown Emissions (25)	VOC	2,154.45	235.60
		NO <sub>x</sub>	399.99	35.02
		CO	4,086.51	111.77
		SO <sub>2</sub>	1,516.48	54.42
		PM	10.18	8.85
		PM <sub>10</sub>	3.10	2.75
		PM <sub>2.5</sub>	3.10	2.75
		H <sub>2</sub> S	60.11	3.08
		HCl	1.20	5.27
		Benzene	8.84	1.08
		Exempt Solvents	0.36	0.53
		Ammonia	6.99	0.27
MSS-Tank Sub-Cap	Tank Related Plant-Wide Planned Maintenance,	VOC	5,514.63	9.37

## Emission Sources - Maximum Allowable Emission Rates

		NO <sub>x</sub>	577.56	1.05
		CO	1,323.86	2.15
		SO <sub>2</sub>	9.89	1.43
		PM	0.12	0.02
		PM <sub>10</sub>	0.12	0.02
		PM <sub>2.5</sub>	0.12	0.02
		H <sub>2</sub> S	2.23	0.02

- (1) Emission point identification - either specific equipment designation or emission point number (EPN).
- (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<sub>x</sub> - total oxides of nitrogen
- SO<sub>2</sub> - sulfur dioxide
- CH<sub>4</sub> - methane
- CO - carbon monoxide
- CO<sub>2</sub> - carbon dioxide
- CO<sub>2</sub>e - carbon dioxide equivalents based on the following Global Warming Potentials (1/2015): CO<sub>2</sub> (1), N<sub>2</sub>O (298), CH<sub>4</sub>(25), SF<sub>6</sub> (22,800), HFC (various), PFC (various).
- N<sub>2</sub>O - nitrous oxide
- PM - particulate matter, suspended in the atmosphere, including PM<sub>10</sub> and PM<sub>2.5</sub>.
- PM<sub>10</sub> - particulate matter equal to or less than 10 microns in diameter.
- PM<sub>2.5</sub> - particulate matter equal to or less than 2.5 microns in diameter
- H<sub>2</sub>S - hydrogen sulfide
- HCl - hydrogen chloride
- HF - hydrogen fluoride
- MTBE - methyl-tertiary-butyl ether
- N<sub>2</sub>O - nitrous oxide
- NH<sub>3</sub> - ammonia
- HCN - hydrogen cyanide
- H<sub>2</sub>SO<sub>4</sub> - 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) Reserved
- (6) Reserved
- (7) Reserved
- (8) Reserved
- (9) These facilities were subject to nonattainment review for VOC for Permit N65. The Non-Tank maintenance, startup, and shutdown (MSS) VOC emissions associated with the COEX II facilities must also be added to the routine VOC emissions from the COEX II facilities to determine compliance with this annual emission cap.
- (10) Reserved

Emission Sources - Maximum Allowable Emission Rates

- (11) These emission caps have been carried forward from the historic flexible permit. Except for the VOC emissions caps, these emission caps are the sum of the individual and subcap emission rates for the pollutant and are shown for information purposes only.
- (12) Reserved
- (13) Post-mod Phase II: After completing Boiler 15 low-NOX burner project authorized by Standard Permit 91911. These allowable emission rates shall apply in lieu of those designated as Post-mod Phase I, if the permit holder samples these facilities for PM<sub>2.5</sub> per Special Condition 51 after completing the Boilerhouse 15 low NO<sub>x</sub> burner project and the results show PM<sub>2.5</sub> emissions are less than 73 percent of the maximum hourly total PM emission rate limit.
- (14) The VOC emissions caps are more limiting than the sum of the individual emission rate limits for those facilities.
- (15) Installation of low NO<sub>x</sub> burners in Boilerhouse 15 boilers authorized by Standard Permit 91911.
- (16) Reserved
- (17) Reserved.
- (18) With the exception of VOC emissions from COEXII facilities, this annual emissions cap applies to the sum total of all normal emissions from the facilities listed on Attachment I and the Non-tank MSS VOC emissions from the facilities listed in Attachment D. VOC MSS emissions from COEX II facilities and the Coker 844 Project do not need to be included when showing compliance with the annual VOC cap.
- (19) Emissions are a subcap of COEXII VOC Cap.
- (20) Emissions shall supersede all existing authorized limits of that pollutant upon completion of the facility's modification as represented in the Coker Project, PI-1 dated February 27, 2018. The modification shall be completed preceding the initial startup of the Coker Unit's DCU 844.
- (21) Reserved
- (22) Annual emissions are included as part of annual emissions authorized for normal facility operation.
- (23) Hourly emissions from Flare EPNs E-23-Flare and E-26-Flare are a subcap of the emissions authorized for the flare in the "MSS Non-Tank Sub-Cap".
- (24) Includes emissions from marine vapor combustors E-MC-24 and E-MC-25.
- (25) These plant-wide MSS emissions subcaps do not include any Coker 844 Project MSS emissions except for hourly emissions from Flare EPNs E-23-Flare and E-26-Flare.
- (26) These are the loading activities associated with the MSAT II Project controlled by marine vapor combustors E-MC-24 and E-MC-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: December 13, 2019

# Emission Sources - Maximum Allowable Emission Rates

Permit Number GHGPSDTX167

This table lists the maximum allowable emission rates of greenhouse gas (GHG) emissions, as defined in Title 30 Texas Administrative Code § 101.1, for all sources of GHG air contaminants on the applicant's property that are authorized 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 authorized by this permit.

## Air Contaminants Data

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
E-01-245	Heater 245	CO <sub>2</sub> (5)	--	18,687.00
		N <sub>2</sub> O (5)	--	0.19
		CH <sub>4</sub> (5)	--	0.95
		CO <sub>2</sub> e	--	18,767.00
T-112	112	CH <sub>4</sub> (5)	-	0.03
		CO <sub>2</sub> e	-	0.87
T-113	113	CH <sub>4</sub> (5)	-	0.03
		CO <sub>2</sub> e	-	0.87
T-114	114	CH <sub>4</sub> (5)	-	0.03
		CO <sub>2</sub> e	-	0.87
E-01-844	DCU 844 Coker Furnace #1	CO <sub>2</sub> (5)	--	119,242.00
		N <sub>2</sub> O (5)	--	1.21
		CH <sub>4</sub> (5)	--	6.06
		CO <sub>2</sub> e	--	119,755.00
E-02-844	DCU 844 Coker Furnace #2	CO <sub>2</sub> (5)	--	119,242.00
		N <sub>2</sub> O (5)	--	1.21

## Emission Sources - Maximum Allowable Emission Rates

		CH <sub>4</sub> (5)	--	6.06
		CO <sub>2</sub> e	--	119,755.00
E-05-SCOT	SRU 547	CO <sub>2</sub> (5)	--	90,029.00
		N <sub>2</sub> O (5)	--	0.48
		CH <sub>4</sub> (5)	--	2.40
		CO <sub>2</sub> e	--	90,232.00
CSV844	Coker Unit 844 Steam Vent	CH <sub>4</sub> (5)	--	161.38
		CO <sub>2</sub> e	--	4,034.00
CSV843	Coker Unit 843 Steam Vent	CH <sub>4</sub> (5)	--	279.00
		CO <sub>2</sub> e	--	6,975.00
MSS	Coker 844 Project MSS	CO <sub>2</sub> (5)	--	1,101.00
		N <sub>2</sub> O (5)	--	0.01
		CH <sub>4</sub> (5)	--	0.06
		CO <sub>2</sub> e	--	1,106.00
E-01-146	Heater 146-H101	CO <sub>2</sub> (5)	--	290,556.00
		N <sub>2</sub> O (5)	--	2.95
		CH <sub>4</sub> (5)	--	14.77
		CO <sub>2</sub> e	--	291,806.00

## Emission Sources - Maximum Allowable Emission Rates

E-02-146	Heater 146-H102AB	CO <sub>2</sub> (5)	--	148,127.00
		N <sub>2</sub> O (5)	--	1.51
		CH <sub>4</sub> (5)	--	7.53
		CO <sub>2</sub> e	--	148,764.00
E-01-147	Heater 147-F-1100	CO <sub>2</sub> (5)	--	225,609.00
		N <sub>2</sub> O (5)	--	2.29
		CH <sub>4</sub> (5)	--	11.47
		CO <sub>2</sub> e	--	226,579.00
E-02-147	Heater 147-F-1200	CO <sub>2</sub> (5)	--	97,764.00
		N <sub>2</sub> O (5)	--	0.99
		CH <sub>4</sub> (5)	--	4.97
		CO <sub>2</sub> e (5)	--	98,184.00
E-01-1344	Heater 1344-H1	CO <sub>2</sub> (5)	--	356,986.00
		N <sub>2</sub> O (5)	--	3.63
		CH <sub>4</sub> (5)	--	18.15
		CO <sub>2</sub> e	--	358,521.00
E-02-1344	Heater 1344-H33	CO <sub>2</sub> (5)	--	29,568.00
		N <sub>2</sub> O (5)	--	0.30
		CH <sub>4</sub> (5)	--	1.50
		CO <sub>2</sub> e	--	29,696.00

## Emission Sources - Maximum Allowable Emission Rates

E-03-1344	Heater 1344-H2_3_32	CO <sub>2</sub> (5)	--	58,111.00
		N <sub>2</sub> O (5)	--	0.59
		CH <sub>4</sub> (5)	--	2.95
		CO <sub>2</sub> e	--	58,361.00
E-01-843	Heater 843-H1	CO <sub>2</sub> (5)	--	130,921.00
		N <sub>2</sub> O (5)	--	1.33
		CH <sub>4</sub> (5)	--	6.66
		CO <sub>2</sub> e	--	131,485.00
E-02-843	Heater 843-H2	CO <sub>2</sub> (5)	--	130,921.00
		N <sub>2</sub> O (5)	--	1.33
		CH <sub>4</sub> (5)	--	6.66
		CO <sub>2</sub> e	--	131,485.00
E-03-843	Heater 843-H3	CO <sub>2</sub> (5)	--	130,921.00
		N <sub>2</sub> O (5)	--	1.33
		CH <sub>4</sub> (5)	--	6.66
		CO <sub>2</sub> e	--	131,485.00
E-01-246	Heater 246-H1	CO <sub>2</sub> (5)	--	25,637.00
		N <sub>2</sub> O (5)	--	0.26
		CH <sub>4</sub> (5)	--	1.30
		CO <sub>2</sub> e	--	25,748.00
E-01-241	Heater 241-B101AB	CO <sub>2</sub> (5)	--	56,516.00
		N <sub>2</sub> O (5)	--	0.57
		CH <sub>4</sub> (5)	--	2.87
		CO <sub>2</sub> e	--	56,759.00
E-01-242	Heater 242-B201AB	CO <sub>2</sub> (5)	--	34,924.00



## Emission Sources - Maximum Allowable Emission Rates

		N <sub>2</sub> O (5)	--	0.36
		CH <sub>4</sub> (5)	--	1.78
		CO <sub>2</sub> e	--	35,074.00
E-01-243	Heater 243	CO <sub>2</sub> (5)	--	45,065.00
		N <sub>2</sub> O (5)	--	0.46
		CH <sub>4</sub> (5)	--	2.29
		CO <sub>2</sub> e	--	45,259.00
E-01-244	Heater 244 F-101/102	CO <sub>2</sub> (5)	--	34,924.00
		N <sub>2</sub> O (5)	--	0.36
		CH <sub>4</sub> (5)	--	1.78
		CO <sub>2</sub> e	--	35,074.00
E-01-942	Heater 942-H1_2_3	CO <sub>2</sub> (5)	--	109,785.00
		N <sub>2</sub> O (5)	--	1.12
		CH <sub>4</sub> (5)	--	5.58
		CO <sub>2</sub> e	--	110,257.00
E-01-443	Heater 443	CO <sub>2</sub> (5)	--	93,377.00
		N <sub>2</sub> O (5)	--	0.95
		CH <sub>4</sub> (5)	--	4.75
		CO <sub>2</sub> e	--	93,779.00
REFUG 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-547, F-6341, F-7542, F-7841, F-7842, F-7848, F-843, F-844, F-8746, F-8747, F-942, FUAUCT, F-DOCKS, F-544, F-Fueling	Refinery Fugitives VOC Subcap (4)	CH <sub>4</sub> (5)	-	113.03
		CO <sub>2</sub> e	-	2826.00

## 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, F-943-75K, F-844, F-547,				
E-01-943	HCU - Reactor 1 and Reactor 2 Furnaces	CO <sub>2</sub> (5)	--	105,968.00
		N <sub>2</sub> O (5)	--	1.08
		CH <sub>4</sub> (5)	--	5.39
		CO <sub>2</sub> e	--	106,423.00
E-02-943	HCU - Fractionator Feed Furnace	CO <sub>2</sub> (5)	--	198,262.00
		N <sub>2</sub> O (5)	--	2.02
		CH <sub>4</sub> (5)	--	10.08
		CO <sub>2</sub> e	--	199,115.00
E-MC-24-25	DOCK-MC	CO <sub>2</sub> (5)	--	184,450.00
		N <sub>2</sub> O (5)	--	2.09
		CH <sub>4</sub> (5)	--	10.43
		CO <sub>2</sub> e	--	185,332.00

- (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) CO<sub>2</sub> - carbon dioxide  
N<sub>2</sub>O - nitrous oxide  
CH<sub>4</sub> - methane  
CO<sub>2</sub>e - carbon dioxide equivalents based on the following Global Warming Potentials (GWP) found in Table A-1 of Subpart A 40 CFR Part 98 (78 FR 71904) for each pollutant: CO<sub>2</sub> (1), N<sub>2</sub>O (298), CH<sub>4</sub>(25)
- (4) Compliance with annual emission limits (tons per year) is based on a 12-month rolling period. These rates include emissions from maintenance, startup, and shutdown.
- (5) Emission rate is given for informational purposes only and does not constitute enforceable limit.

Date: February 8, 2019