

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

[illegible]

Emission Sources - Maximum Allowable Emission Rates

		NO _x	885.8	3,191 (12)
		NO _x	859.9	1,611 (6) (12)
		CO	1207	3,780.00 (12)
		CO	1174	2,950 (6) (12)
		PM	132.6	538.00
		PM	120.8	455.00 (6)
		Ammonia	0.10	0.20
		Ammonia (5)	1.43	4.87
		Ammonia (6)	2.66	8.99
		H ₂ S	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
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

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		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
		SO ₂ (20)	0.85	0.96
		CO	2.48	10.84
		PM	0.26	1.07
		PM ₁₀	0.26	1.07
		PM _{2.5}	0.26	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-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-	COEXII VOC Cap (9)	VOC	37.92	108.25

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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
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-112	112	VOC	9.49	3.50
		H ₂ S	0.14	0.24
T-113	113	VOC	9.49	3.50
		H ₂ S	0.14	0.24
T-114	114	VOC	9.49	3.50
		H ₂ S	0.14	0.24

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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 ₂ S	0.48	0.39
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
E-01-844	DCU 844 Coker Furnace #1	NO _x	3.45	13.75
		NO _x (MSS)	34.55	(22)
		VOC	1.24	4.94
		SO ₂	5.34	3.93
		CO	16.57	32.97
		CO (MSS)	82.83	(22)
		PM	1.84	6.99
		PM ₁₀	1.84	6.99
		PM _{2.5}	1.84	6.99

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		NH ₃	1.01	4.00
E-02-844	DCU 844 Coker Furnace #2	NO _x	3.45	13.75
		NO _x (MSS)	34.55	(22)
		VOC	1.24	4.94
		SO ₂	5.34	3.93
		CO	16.57	32.97
		CO (MSS)	82.83	(22)
		PM	1.84	6.99
		PM ₁₀	1.84	6.99
		PM _{2.5}	1.84	6.99
		NH ₃	1.01	4.00
F-LOADING	SRU 547 Truck Sulfur Loading	H ₂ S	0.72	0.62

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E-05-SCOT	SRU 547	VOC	0.45	1.96
		NO _x	6.63	29.03
		CO	36.19	63.41
		SO ₂	81.46	142.72
		PM	1.23	5.41
		PM ₁₀	1.23	5.41
		PM _{2.5}	1.23`	5.41
		H ₂ S	0.88	3.85
CSV844	Coker Unit 844 Steam Vent	VOC	55.00	35.50
		PM	1.31	0.85
		PM ₁₀	1.31	0.85
		PM _{2.5}	1.31	0.85
		H ₂ S	3.13	2.02
CSV843	Coker Unit 843 Steam Vent	VOC	55.00	61.38
		PM	7.72	8.61
		PM ₁₀	7.72	8.61
		PM _{2.5}	7.72	8.61
		H ₂ S	18.38	20.51
		PM (21)	2.28	1.75
		PM ₁₀ (21)	2.28	1.75
		PM _{2.5} (21)	2.28	1.75
		H ₂ S (21)	5.43	4.18
F-844PM	Unit 844 coke handling (FINS F-844-1 to F-844-6)	PM	0.26	0.40
		PM ₁₀	0.12	0.19
		PM _{2.5}	0.02	0.03
WWC	Coker 844	VOC	0.01	0.03

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	Wastewater Collection System			
MSS	Coker 844 Project MSS (23)	VOC	542.76	5.49
		NO _x	29.03	0.51
		CO	194.71	3.27
		SO ₂	299.15	8.97
		H ₂ S	3.18	0.19
		PM	1.48	<0.01
		PM ₁₀	1.48	<0.01
		PM _{2.5}	1.48	<0.01
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
		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

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E-01-BH 15, E-02-BH 15, E-03-BH 15	Boilerhouse 15 Subcap Post-mod Phasell (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
		NO _x (20)	36.85	149.66
		VOC (20)	2.97	12.05
		SO ₂ (20)	19.73	14.84
		CO (20)	37.22	75.58
		CO (MSS) (20)	87.97	(22)
		PM (20)	4.10	16.64
		PM ₁₀ (20)	4.10	16.64

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		PM _{2.5} (20)	4.10	16.64
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
		NO _x (20)	16.12	70.61
		VOC (20)	1.40	6.14
		SO ₂ (20)	9.33	7.57
		CO (20)	17.59	38.53
		CO (MSS) (20)	87.97	(22)
		PM (20)	1.94	8.49
		PM ₁₀ (20)	1.94	8.49
		PM _{2.5} (20)	1.94	8.49
E-01-147	Heater 147-F-1100	NO _x	13.86	60.71
		VOC	2.14	9.35
		SO ₂	10.59	17.39
		SO ₂ (20)	10.59	7.58
		CO	32.61	68.93
		PM	2.95	12.92
		PM ₁₀	2.95	12.92
		PM _{2.5}	2.95	12.92
E-02-147	Heater 147-F-1200	NO _x	7.80	17.28
		VOC	0.92	3.29
		SO ₂	4.10	5.66

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		SO ₂ (20)	4.10	3.29
		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
		SO ₂ (20)	11.95	18.53
		CO	40.45	82.24
		PM	5.05	20.45
		PM ₁₀	5.05	20.45
		PM _{2.5}	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
		CO	4.26	9.33
		PM	0.38	1.69
		PM ₁₀	0.38	1.69
		PM _{2.5}	0.38	1.69
E-03-1344	Heater 1344-H2_3_32	NO _x	12.80	26.81
		VOC	0.86	2.41
		SO ₂	2.89	4.75
		SO ₂ (20)	2.89	3.02
		CO	10.64	13.43

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		PM	1.19	3.33
		PM ₁₀	1.19	3.33
		PM _{2.5}	1.19	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
		SO ₂ (20)	6.79	4.38
		CO	21.96	31.76
		PM	1.99	7.50
		PM ₁₀	1.99	7.50
		PM _{2.5}	1.99	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
		SO ₂ (20)	6.79	4.38
		CO	21.96	31.76
		PM	1.99	7.50
		PM ₁₀	1.99	7.50
		PM _{2.5}	1.99	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
		SO ₂ (20)	6.79	4.38
		CO	21.96	31.76
		PM	1.99	7.50

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		PM ₁₀	1.99	7.50
		PM _{2.5}	1.99	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
		SO ₂ (20)	1.44	0.88
		CO	4.07	6.19
		PM	0.47	1.47
		PM ₁₀	0.47	1.47
		PM _{2.5}	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

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

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		VOC	0.36	1.60
		SO ₂	1.90	3.11
		SO ₂ (20)	1.90	1.80
		CO	5.13	11.91
		PM	0.49	2.00
		PM ₁₀	0.49	2.00
		PM _{2.5}	0.49	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
		SO ₂ (20)	5.45	3.68
		CO	17.61	26.75
		PM	1.60	6.29
		PM ₁₀	1.60	6.29
		PM _{2.5}	1.60	6.29
E-01-443	Heater 443	NO _x	14.20	42.83
		VOC	1.09	3.88
		SO ₂	3.34	5.49
		SO ₂ (20)	3.34	4.86
		CO	16.67	21.44
		PM	1.51	5.35
		PM ₁₀	1.51	5.35
		PM _{2.5}	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,	Refinery Fugitives VOC Subcap (4)	VOC	259.49	1132.81
		H ₂ S	5.60	24.54
		NH ₃	1.47	5.06
		HF	0.36	1.75
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	218.70	153.30
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	309.30
E-05-FLARE, F-13-FLARE, F-15-FLARE, F-18-FLARE, F-19-	Flares Subcap (14)	NO _x	43.93	38.67

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		VOC	65.74	57.86
		SO ₂	24.87	8.11
		CO	302.8	266.50
		H ₂ S	0.26	0.09
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 _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
		PM ₁₀	24.58	58.60
		PM _{2.5}	24.58	58.60
		H ₂ S	3.67	11.23
E-01-SCOT	SRU 543	SO ₂	57.90	--
		H ₂ S	0.62	--
E-02-SCOT	SRU 544	SO ₂	82.77	--
		H ₂ S	0.88	--
E-03-SCOT	SRU 545	SO ₂	137.89	--
		H ₂ S	1.47	--
E-04-SCOT	SRU 546	SO ₂	137.89	--
		H ₂ S	1.47	--

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E-02-SRK	SRU 543 and 544 sulfur loading	H ₂ S	0.36	0.28
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
		VOC (19)	0.60	2.20
		SO ₂	8.20	11.23
		SO ₂ (20)	8.20	5.87
		CO	14.93	27.27
		PM	1.66	6.07
		PM ₁₀	1.66	6.07
		PM _{2.5}	1.66	6.07
E-02-943	HCU - Fractionator Feed Furnace	NO _x	5.22	22.86
		NO _x (Start-up)	52.20	(22)
		VOC (19)	1.88	8.22
		SO ₂	13.31	17.51
		SO ₂ (20)	13.31	10.79
		CO	23.27	50.97
		CO (Start-up)	116.37	(22)
		PM	2.90	11.81
		PM ₁₀	2.90	11.81
		PM _{2.5}	2.90	11.81
		Ammonia	1.41	6.19
E-26-FLARE	HCU 943 Flare	NO _x	0.31	1.38

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		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 ₂ SO ₄	18.26	80.00
E-MC-24-25	DOCK-MC (24)	NO _x	49.68	20.83
		VOC	33.19	20.08
		CO	99.18	41.58
		SO ₂	0.19	0.07
		PM	2.68	1.12
		PM ₁₀	2.68	1.12
		PM _{2.5}	2.68	1.12
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

Emission Sources - Maximum Allowable Emission Rates

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
		VOC (20)	1.89	8.28
		PM (20)	0.56	1.97
		PM ₁₀ (20)	0.56	1.95
		PM _{2.5} (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 ₁₀ (20)	0.47	1.64
		PM _{2.5} (20)	0.11	0.37
F-446CT	Cooling Tower 446	PM	0.03	0.11
		PM ₁₀	0.03	0.11
		PM _{2.5}	0.03	0.11
		VOC (19)(20)	1.99	8.72
		PM (20)	0.59	8.72
		PM ₁₀ (20)	0.59	2.05
		PM _{2.5} (20)	0.13	0.47
F-843PM	Unit 843 coke storage and loading (FINS)	PM	2.41	10.56

Emission Sources - Maximum Allowable Emission Rates

		PM _{2.5}	0.06	0.26
		PM (20)	5.17	8.71
		PM ₁₀ (20)	2.48	4.26
		PM _{2.5} (20)	0.37	0.63

- (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
 - SO₂ - sulfur dioxide
 - CH₄ - methane
 - CO - carbon monoxide
 - CO₂ - carbon dioxide
 - CO₂e - carbon dioxide equivalents based on the following Global Warming Potentials (1/2015): CO₂ (1), N₂O (298), CH₄(25), SF₆ (22,800), HFC (various), PFC (various).
 - N₂O - nitrous oxide
 - PM - particulate matter, suspended in the atmosphere, including PM₁₀ and PM_{2.5}.
 - PM₁₀ - 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
 - H₂S - hydrogen sulfide
 - HCl - hydrogen chloride
 - HF - hydrogen fluoride
 - MTBE - methyl-tertiary-butyl ether
 - N₂O - nitrous oxide
 - NH₃ - ammonia
 - HCN - hydrogen cyanide
 - H₂SO₄ - 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}.

Emission Sources - Maximum Allowable Emission Rates

- (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.
- (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) 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. **(11/18)**

Emission Sources - Maximum Allowable Emission Rates

- (21) Limits apply January 1, 2019.
- (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 MSS permit 80812.
- (24) Includes emissions from 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: November 16, 2018

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 ₂ (5)	--	18,687.00
		N ₂ O (5)	--	0.19
		CH ₄ (5)	--	0.95
		CO ₂ e	--	18,767.00
T-112	112	CH ₄ (5)	-	0.03
		CO ₂ e	-	0.87
T-113	113	CH ₄ (5)	-	0.03
		CO ₂ e	-	0.87
T-114	114	CH ₄ (5)	-	0.03
		CO ₂ e	-	0.87
E-01-844	DCU 844 Coker Furnace #1	CO ₂ (5)	--	119,242.00
		N ₂ O (5)	--	1.21
		CH ₄ (5)	--	6.06
		CO ₂ e	--	119,755.00
E-02-844	DCU 844 Coker Furnace #2	CO ₂ (5)	--	119,242.00
		N ₂ O (5)	--	1.21
Project Number: 293701				

Emission Sources - Maximum Allowable Emission Rates

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

Emission Sources - Maximum Allowable Emission Rates

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

Emission Sources - Maximum Allowable Emission Rates

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

Emission Sources - Maximum Allowable Emission Rates

		N ₂ O (5)	--	0.36
		CH ₄ (5)	--	1.78
		CO ₂ e	--	35,074.00
E-01-243	Heater 243	CO ₂ (5)	--	45,065.00
		N ₂ O (5)	--	0.46
		CH ₄ (5)	--	2.29
		CO ₂ e	--	45,259.00
E-01-244	Heater 244 F-101/102	CO ₂ (5)	--	34,924.00
		N ₂ O (5)	--	0.36
		CH ₄ (5)	--	1.78
		CO ₂ e	--	35,074.00
E-01-942	Heater 942-H1_2_3	CO ₂ (5)	--	109,785.00
		N ₂ O (5)	--	1.12
		CH ₄ (5)	--	5.58
		CO ₂ e	--	110,257.00
E-01-443	Heater 443	CO ₂ (5)	--	93,377.00
		N ₂ O (5)	--	0.95
		CH ₄ (5)	--	4.75
		CO ₂ e	--	93,779.00
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	Refinery Fugitives VOC Subcap (4)	CH ₄ (5)	-	113.03
		CO ₂ 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 ₂ (5)	--	105,968.00
		N ₂ O (5)	--	1.08
		CH ₄ (5)	--	5.39
		CO ₂ e	--	106,423.00
E-02-943	HCU - Fractionator Feed Furnace	CO ₂ (5)	--	198,262.00
		N ₂ O (5)	--	2.02
		CH ₄ (5)	--	10.08
		CO ₂ e	--	199,115.00
E-MC-24-25	DOCK-MC	CO ₂ (5)	--	184,450.00
		N ₂ O (5)	--	2.09
		CH ₄ (5)	--	10.43
		CO ₂ 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) CO₂ - carbon dioxide
N₂O - nitrous oxide
CH₄ - methane
CO₂e - 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: CO₂ (1), N₂O (298), CH₄(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