

Emission Sources - Maximum Allowable Emission Rates

Permit Number 19168 and PSDTX1226

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)
1001	Pyrolysis Furnace # 1	CO	12.18	-
		CO MSS (8)	47.18	-
		NO _x	31.02	-
		NO _x MSS (8)	34.02	-
		PM	3.69	-
		PM ₁₀	3.69	-
		PM _{2.5}	3.69	-
		SO ₂	0.38	-
		VOC	4.69	-
1002	Pyrolysis Furnace #2	CO	12.18	-
		CO MSS (8)	47.18	-
		NO _x	31.02	-
		NO _x MSS (8)	34.02	-
		PM	3.69	-
		PM ₁₀	3.69	-
		PM _{2.5}	3.69	-
		SO ₂	0.38	-
		VOC	4.69	-
1003	Pyrolysis Furnace #3	CO	8.16	-
		CO MSS (8)	43.16	-
		NO _x	30.29	-
		NO _x MSS (8)	33.29	-
		PM	3.69	-
		PM ₁₀	3.69	-

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		PM _{2.5}	3.69	
		SO ₂	0.38	-
		VOC	2.67	-
1004	Pyrolysis Furnace #4	CO	8.16	-
		CO MSS (8)	43.16	-
		NO _x	30.29	-
		NO _x MSS (8)	33.29	-
		PM	3.69	-
		PM ₁₀	3.69	-
		PM _{2.5}	3.69	-
		SO ₂	0.38	-
		VOC	2.67	-
1005	Pyrolysis Furnace #5	CO	8.16	-
		CO MSS (8)	43.16	-
		NO _x	30.29	-
		NO _x MSS (8)	33.29	-
		PM	3.69	-
		PM ₁₀	3.69	-
		PM _{2.5}	3.69	-
		SO ₂	0.38	-
		VOC	2.67	-
1006	Pyrolysis Furnace #6	CO	8.16	-
		CO MSS (8)	43.16	-
		NO _x	30.29	-
		NO _x MSS (8)	33.29	-
		PM	3.69	-
		PM ₁₀	3.69	-
		PM _{2.5}	3.69	-
		SO ₂	0.38	-

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		VOC	2.67	-
1007	Pyrolysis Furnace #7	CO	8.16	-
		CO MSS (8)	43.16	-
		NO _x	30.29	-
		NO _x MSS (8)	33.29	-
		PM	3.69	-
		PM ₁₀	3.69	-
		PM _{2.5}	3.69	-
		SO ₂	0.38	-
		VOC	2.67	-
1008	Pyrolysis Furnace #8	CO	8.16	-
		CO MSS (8)	43.16	-
		NO _x	30.29	-
		NO _x MSS (8)	33.29	-
		PM	3.69	-
		PM ₁₀	3.69	-
		PM _{2.5}	3.69	-
		SO ₂	0.38	-
		VOC	2.67	-
1009	Decoke Drum (6)	CO	153.19	27.04
		PM	14.07	2.48
		PM ₁₀	14.07	2.48
		PM _{2.5}	14.07	2.48
		VOC	0.01	0.01
1009B	Pyrolysis Furnace #9	CO	8.16	-
		CO MSS (8)	43.16	-
		NO _x	30.29	-
		NO _x MSS (8)	33.29	-
		PM	3.69	-

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		PM ₁₀	3.69	-
		PM _{2.5}	3.69	-
		SO ₂	0.38	-
		VOC	2.67	-
1010B	Pyrolysis Furnace #10	CO	8.75	-
		CO MSS (8)	43.75	-
		NO _x	18.75	-
		NO _x MSS (8)	21.75	-
		PM	3.96	-
		PM ₁₀	3.96	-
		PM _{2.5}	3.96	-
		SO ₂	0.41	-
		VOC	2.28	-
1011B	Pyrolysis Furnace #11	CO	8.75	32.19
		CO MSS (8)	43.75	-
		NO _x	18.75	39.48
		NO _x MSS (8)	21.75	-
		PM	3.96	14.56
		PM ₁₀	3.96	14.56
		PM _{2.5}	2.44	8.97
		SO ₂	0.41	1.49
		VOC	2.28	8.37
1001-1008, 1009B, 1010B, 1011B	Pyrolysis Furnace Cap (10)	CO	-	350.05
		CO MSS (8)	-	19.44
		NO _x	-	1259.77
		PM	-	162.78
		PM ₁₀	-	162.78
		PM _{2.5}	-	162.78
		SO ₂	-	16.72

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		VOC	-	115.34
1010	Olefins Cooling Tower	VOC	5.46	23.91
		PM	4.23	11.82
		PM ₁₀	0.98	4.29
		PM _{2.5}	0.01	0.02
		Chlorine Compounds	0.01	0.01
1011	Olefins Oil & Water Separator	VOC	2.76	12.09
1012	MAPD Regenerator 3418F	CO	7.58	0.03
		VOC	0.24	0.01
1018	Elevated Flare (7)	CO	14.12	61.83
		CO MSS	13,679.58	155.46 (9)
		NO _x	2.77	12.13
		NO _x MSS	2684.59	21.82 (9)
		SO ₂	0.01	0.05
		VOC	3.04	13.30
		VOC MSS	8603.67	155.07 (9)
OL1-TEMP	Temporary Portable Thermal Oxidizer (MSS) (11)	CO	0.92	1.15
		NO _x	1.37	1.71
		PM	0.01	0.01
		PM ₁₀	0.01	0.01
		PM _{2.5}	0.01	0.01
		SO ₂	0.01	0.01
		VOC	1.01	1.26
1020	Olefins Tank 6401F	VOC	11.87	22.41
1028	Olefins 1 Plant Fugitives (5)	VOC	23.65	103.60
		Cl ₂	0.01	0.02
OL1-MAINT	OL1 Process Fugitive MSS	VOC MSS	258.12	4.10
1050	H ₂ SO ₄ Tank	H ₂ SO ₄	0.01	0.01
1051	Tank Vapor Combustor	CO	9.84	23.77

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		CO MSS	-	0.01
		NO _x	2.47	5.97
		NO _x MSS	-	0.02
		PM	0.32	1.00
		PM MSS	0.04	0.01
		PM ₁₀	0.32	1.00
		PM ₁₀ MSS	0.04	0.01
		PM _{2.5}	0.32	1.00
		PM _{2.5} MSS	0.04	0.01
		SO ₂	0.02	0.05
		VOC	0.27	0.65
		VOC MSS	3.37	0.15
7900LJD	Emergency Generator Vent	CO	0.44	0.01
		NO _x	13.40	0.35
		PM	0.50	0.01
		PM ₁₀	0.50	0.01
		PM _{2.5}	0.50	0.01
		SO ₂	2.79	0.07
		VOC	0.08	0.01
7900LJDF	Diesel Storage Tank Vent	VOC	0.06	0.01
PGCLUBE	Olefins – Lube Oil Reservoir V	VOC	0.01	0.01
PRCERCLUBE	P.R.C. & E.R.C. Lube Oil Reservoir	VOC	0.01	0.01
3602J1/J2L	Methane Expander Lube Oil Vent	VOC	0.01	0.01
PGCSEAL	P.G.C Seal Oil Reservoir Vent	VOC	0.01	0.01
PRCERCSEAL	P.R.C & E.R.C Seal Oil Reservoir	VOC	0.01	0.01
2412FCC	Caustic Sump Carbon Canister	VOC	0.01	0.01
C29600	Chemical Additive	VOC	4.68	0.03

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	Storage Tank			
C29601	Chemical Additive Storage Tank	VOC	4.68	0.03
N83070	Chemical Additive Storage Tank	VOC	0.05	0.01
N83071	Chemical Additive Storage Tank	VOC	0.06	0.01
N79134	Chemical Additive Storage Tank	VOC	6.08	0.04
Olefins II Unit				
1054	Furnace 1 Stack	CO	12.57	-
		CO MSS (8)	47.57	-
		NO _x	20.02	-
		NO _x MSS (8)	23.02	-
		PM	3.86	-
		PM ₁₀	3.86	-
		PM _{2.5}	3.86	-
		SO ₂	0.40	-
		VOC	4.81	-
1055	Furnace 2 Stack	CO	12.57	-
		CO MSS (8)	47.57	-
		NO _x	20.02	-
		NO _x MSS (8)	23.02	-
		PM	3.86	-
		PM ₁₀	3.86	-
		PM _{2.5}	3.86	-
		SO ₂	0.40	-
		VOC	4.81	-
1056	Furnace 3 Stack	CO	12.57	-
		CO MSS (8)	47.57	-
		NO _x	20.02	-
		NO _x MSS (8)	23.02	-

Emission Sources - Maximum Allowable Emission Rates

		PM	3.86	-
		PM ₁₀	3.86	-
		PM _{2.5}	3.86	-
		SO ₂	0.40	-
		VOC	4.81	-
1057	Furnace 4 Stack	CO	8.54	-
		CO MSS (8)	43.54	-
		NO _x	19.29	-
		NO _x MSS (8)	22.29	-
		PM	3.86	-
		PM ₁₀	3.86	-
		PM _{2.5}	3.86	-
		SO ₂	0.40	-
		VOC	2.80	-
1058	Furnace 5 Stack	CO	8.54	-
		CO MSS (8)	43.54	-
		NO _x	19.29	-
		NO _x MSS (8)	22.29	-
		PM	3.86	-
		PM ₁₀	3.86	-
		PM _{2.5}	3.86	-
		SO ₂	0.40	-
		VOC	2.80	-
1059	Furnace 6 Stack	CO	8.54	-
		CO MSS (8)	43.54	-
		NO _x	19.29	-
		NO _x MSS (8)	22.29	-
		PM	3.86	-
		PM ₁₀	3.86	-

Emission Sources - Maximum Allowable Emission Rates

		PM _{2.5}	3.86	-
		SO ₂	0.40	-
		VOC	2.80	-
1060	Furnace 7 Stack	CO	8.54	-
		CO MSS (8)	43.54	-
		NO _x	19.29	-
		NO _x MSS (8)	22.29	-
		PM	3.86	-
		PM ₁₀	3.86	-
		PM _{2.5}	3.86	-
		SO ₂	0.40	-
		VOC	2.80	-
1061	Furnace 8 Stack	CO	8.54	-
		CO MSS (8)	43.54	-
		NO _x	19.29	-
		NO _x MSS (8)	22.29	-
		PM	3.86	-
		PM ₁₀	3.86	-
		PM _{2.5}	3.86	-
		SO ₂	0.40	-
		VOC	2.80	-
1062	Furnace 9 Stack	CO	8.54	-
		CO MSS (8)	43.54	-
		NO _x	19.29	-
		NO _x MSS (8)	22.29	-
		PM	3.86	-
		PM ₁₀	3.86	-
		PM _{2.5}	3.86	-
		SO ₂	0.40	-

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		VOC	2.80	-
1091	Furnace 10 Stack	CO	8.54	-
		CO MSS (8)	43.54	-
		NO _x	19.29	-
		NO _x MSS (8)	22.29	-
		PM	3.86	-
		PM ₁₀	3.86	-
		PM _{2.5}	3.86	-
		SO ₂	0.40	-
		VOC	2.80	-
1054-1062, 1091	Pyrolysis Furnace Annual Caps	CO	-	319.16
		NO _x	-	720.57
		PM	-	144.32
		PM ₁₀	-	144.32
		PM _{2.5}	-	144.32
		SO ₂	-	14.81
		VOC	-	104.66
N1011	Pyrolysis Furnace	CO	8.75	28.47
		CO MSS (8)	43.75	-
		NO _x	18.75	65.70
		NO _x MSS (8)	21.75	-
		PM	3.96	17.34
		PM ₁₀	3.96	17.34
		PM _{2.5}	3.96	17.34
		SO ₂	0.41	1.78
		VOC	2.28	9.97
N1012	Pyrolysis Furnace	CO	8.75	28.47
		CO MSS (8)	43.75	-
		NO _x	18.75	65.70

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		NO _x MSS (8)	21.75	-
		PM	3.96	17.34
		PM ₁₀	3.96	17.34
		PM _{2.5}	3.96	17.34
		SO ₂	0.41	1.78
		VOC	2.28	9.97
1054-1062, 1091, N1011, N1012	Pyrolysis Furnace Cap	CO MSS	-	12.92
1063	Decoking Drum Vent (6)	CO	153.19	34.69
		PM	14.07	3.19
		PM ₁₀	14.07	3.19
		PM _{2.5}	14.07	3.19
		VOC	0.01	0.01
1064	Cooling Tower	VOC	5.28	23.14
		PM	6.87	19.21
		PM ₁₀	1.59	6.97
		PM _{2.5}	0.01	0.04
		Chlorine Compounds	0.01	0.01
1065	Corrugated Plate Interface - OLII	VOC	2.76	12.09
1066	MAPD Regenerator	CO	7.58	0.03
		VOC	0.24	0.01
1067	Olefins 2 Flare (7)	CO	22.39	98.09
		CO MSS	13,679.58	155.46 (9)
		NO _x	4.39	19.25
		NO _x MSS	2684.59	21.82 (9)
		SO ₂	0.02	0.11
		VOC	1.84	8.05
		VOC MSS	8603.67	155.07 (9)
OL2-TEMP	Temporary Portable Thermal Oxidizer (MSS) (11)	CO	0.92	1.15

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		NO _x	1.37	1.71
		PM	0.01	0.01
		PM ₁₀	0.01	0.01
		PM _{2.5}	0.01	0.01
		SO ₂	0.01	0.01
		VOC	1.01	1.26
1068	Olefins 2 Fugitives (5)	VOC	30.56	133.84
		Cl ₂	0.01	0.02
OL2-MAINT	OL2 Process Fugitive MSS	VOC MSS	237.61	2.40
1085	Fuel Oil Tank N6499FA	VOC	1.64	3.10
1086	Fuel Oil Tank N6499FB	VOC	1.64	3.10
1087	Olefins 2 Tank Flare	CO	12.48	8.70
		CO MSS	16.08	0.39
		NO _x	3.13	13.66
		NO _x MSS	3.12	0.08
		SO ₂	0.02	0.08
		VOC	0.26	0.66
		VOC MSS	45.90	1.13
1088	Wash Oil Day Tank 2410F	VOC	2.45	0.10
1090	H ₂ SO ₄ Tank	H ₂ SO ₄	0.01	0.01
N7900LJD	Diesel Emergency Generator	CO	4.16	0.11
		NO _x	9.13	0.24
		PM	0.58	0.02
		PM ₁₀	0.58	0.02
		PM _{2.5}	0.58	0.02
		SO ₂	1.85	0.05
		VOC	0.10	0.01
NPGCLUBE	Olefins II – Lube Oil	VOC	0.01	0.01

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	Reservoir			
NPRCERCLUB	P.R.C. & E.R.C. Lube Oil Reservoir	VOC	0.01	0.01
N3602JLUBE	Methane Expander Lube Oil Vent	VOC	0.01	0.01
NPGCSEAL 1	P.G.C. Seal Oil Reservoir Vent	VOC	0.01	0.01
N2412FCC	Sump Carbon Canister	VOC	0.01	0.01
N2413F	OL2 PGC Antifoulant Bulk Storage Tank	VOC	2.84	0.05
N5704LF3CC	Zimpro Carbon Canister	VOC	0.04	0.01
N920766	Chemical Additive Storage Tank	VOC	9.35	0.04
N920425	Chemical Additive Storage Tank	VOC	4.60	0.03
N1705L2F	Additive Storage Tank	VOC	0.08	0.01
N1705L5F	Additive Storage Tank	VOC	0.08	0.01
Gasoline Hydrotreater Unit				
8001B	Regeneration Heater (1,000 hours per year)	CO	1.92	0.96
		NO _x	0.66	0.33
		PM	0.17	0.09
		PM ₁₀	0.17	0.09
		PM _{2.5}	0.17	0.09
		SO ₂	0.02	0.01
		VOC	0.13	0.06
8002B	Second Stage Feed Heater	CO	0.70	3.09
		NO _x	0.24	1.06
		PM	0.06	0.28
		PM ₁₀	0.06	0.28
		PM _{2.5}	0.06	0.28
		SO ₂	0.01	0.03
		VOC	0.05	0.20
8003B	GHU Vapor	CO	9.07	26.70

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		CO MSS	6.58	0.37
		NO _x	2.28	6.71
		NO _x MSS	1.28	0.07
		PM	0.32	1.00
		PM MSS	0.14	0.01
		PM ₁₀	0.32	1.00
		PM ₁₀ MSS	0.14	0.01
		PM _{2.5}	0.32	1.00
		PM _{2.5} MSS	0.14	0.01
		SO ₂	0.01	0.03
		VOC	1.93	5.69
		VOC MSS	9.39	0.54
8801U	GHU Cooling Tower	VOC	1.32	5.79
		PM	1.72	4.80
		PM ₁₀	0.40	1.74
		PM _{2.5}	0.01	0.01
		Chlorine Compounds	0.01	0.01
8801F	GHU Fugitives (5)	VOC	3.81	16.70
		Cl ₂	0.01	0.02
Propylene Purification Unit				
PPUFUG-1	Unloading Station Fugitives (5)	VOC	1.15	5.04
PPUFUG-2	Process Area Fugitives (5)	VOC	2.51	10.98
PPUFUG-3	Storage Spheres Fugitives (5)	VOC	0.19	0.85
PPULUBE	P.P.U. Lubr. Oil Reservoir	VOC	0.01	0.01
West Metering Station				
WMS-1	UCC West Metering Station Analyzer Purge	VOC	0.23	1.01
Natural Gas Liquids Fractionation Unit				

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FRACII-FUG	Process Area Fugitives (5)	VOC	1.65	7.24
		Cl ₂	0.01	0.02
FRACII-CT	Cooling Tower	VOC	1.50	6.58
		PM	1.95	5.46
		PM ₁₀	0.45	1.98
		PM _{2.5}	0.01	0.01
		Chlorine Compounds	0.01	0.01
FRACII-VO	Vessel Opening	VOC MSS	3.02	0.10
1067	Flare 1 (Fractionator Normal Operation)	CO	0.65	2.85
		NO _x	0.13	0.56
		SO ₂	0.01	0.01
		VOC	0.05	0.23
1067	Flare 1 (Fractionator Startup Shutdown)	CO MSS	4.79	0.36
		NO _x MSS	0.66	0.05
		SO ₂ MSS	0.01	0.01
		VOC MSS	8.19	0.61
1067	Flare 1 (Fractionator MSS Purging)	CO MSS	4.29	0.70
		NO _x MSS	0.59	0.10
		SO ₂ MSS	0.01	0.01
		VOC MSS	8.67	1.56

- (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
 - PM
 - total particulate matter, suspended in the atmosphere, including PM₁₀ and PM_{2.5}, as represented
 - 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 (98%)
- (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.

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- (6) No more than 6 pyrolysis furnaces shall be de-coked at any one time: two furnaces to decoke drum EPN 1009 (Olefins I), two furnaces to de-coke drum EPN 1063 (Olefins II), and two furnaces to either decoke drum EPN 1009 (Olefins I) or to de-coke drum EPN 1063 (Olefins II).
- (7) Only one flare may be used to control startup emissions at one time.
- (8) Any two pyrolysis furnaces listed in Special Condition No. 6 of this permit may each emit at this maximum lb/hr NO_x allowable emission rates. Any two pyrolysis furnaces listed in Special Condition No. 8 of this permit may each emit at this maximum lb/hr CO allowable emission rates. Annual CO and NO_x MSS emissions are included in the routine operations TPY values for EPN 1011B.
- (9) TPY allowable emission rates for CO, NO_x and VOC MSS reflect combined cap for flares 1018 and 1067.
- (10) See individual EPN for hourly limits for these furnaces. Furnace 11 (EPN 1011B) is included in the annual Furnace Cap and also has individual annual emission limits. The annual cap values for each pollutant reflect the respective sums of the individual annual allowable emission rates for these sources.
- (11) Hourly and annual emissions from MSS control devices (EPNs 1018, 1051, 1067, 1087, 8003B, OL1-TEMP, and OL2-TEMP) will not exceed the total hourly and annual MSS emissions authorized for EPNs 1018, 1051, 1067, 1087, and 8003B. No more than 1 portable thermal oxidizer (EPN OL1-TEMP) in Olefins 1 Plant and 1 portable thermal oxidizer (EPN OL2-TEMP) in Olefins 2 Plant will operate simultaneously.

Date: TBD