

EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

Permit Nos. 19168 and PSD-TX-760M4

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. Any proposed increase in emission rates may require an application for a modification of the facilities covered by this permit.

AIR CONTAMINANTS DATA

Emission *	Source	Air Contaminant	<u>Emission Rates</u>	
<u>Point No. (1)</u>	<u>Name (2)</u>	<u>Name (3)</u>	<u>lb/hr</u>	<u>TPY</u>
Olefins Unit No. 1:				
1001	Pyrolysis Furnace	VOC	0.70	3.00
		NO _x	30.30	132.71
		CO	8.20	35.92
		TSP	0.50	2.20
		SO ₂	0.38	1.70
1002	Pyrolysis Furnace	VOC	0.70	3.00
		NO _x	30.30	132.71
		CO	8.20	35.92
		TSP	0.50	2.20
		SO ₂	0.38	1.70
1003	Pyrolysis Furnace	VOC	0.70	3.00
		NO _x	30.30	132.71
		CO	8.20	35.92
		TSP	0.50	2.20
		SO ₂	0.38	1.70
1004	Pyrolysis Furnace	VOC	0.70	3.00
		NO _x	30.30	132.71
		CO	8.20	35.92
		TSP	0.50	2.20
		SO ₂	0.38	1.70
1005	Pyrolysis Furnace	VOC	0.70	3.00
		NO _x	30.30	132.71
		CO	8.20	35.92

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Emission * Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lb/hr	TPY
		TSP	0.50	2.20
		SO ₂	0.38	1.70
Olefins Unit No. 1 (continued):				
1006	Pyrolysis Furnace	VOC	0.70	3.00
		NO _x	30.30	132.71
		CO	8.20	35.92
		TSP	0.50	2.20
		SO ₂	0.38	1.70
1007	Pyrolysis Furnace	VOC	0.70	3.00
		NO _x	30.30	132.71
		CO	8.20	35.92
		TSP	0.50	2.20
		SO ₂	0.38	1.70
1008	Pyrolysis Furnace	VOC	0.70	3.00
		NO _x	30.30	132.71
		CO	8.20	35.92
		TSP	0.50	2.20
		SO ₂	0.38	1.70
1009	Decoke Drum (5)	CO	34.62	14.00
		TSP	3.20	1.30
1009B	Pyrolysis Furnace	VOC	0.70	3.00
		NO _x	30.30	132.71
		CO	8.20	35.92
		TSP	0.50	2.20
		SO ₂	0.38	1.70
1010	Cooling Tower	VOC	5.29	23.19
		BZ	0.17	0.73

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<u>Point No. (1)</u>	<u>Name (2)</u>	<u>Name (3)</u>	<u>lb/hr</u>	<u>TPY</u>
1011	CPI Oil/Water Separator	VOC	2.76	12.09
		BZ	0.64	2.78
1012	MAPD Regenerator 3418F	CO	17.30	0.01
1015	Raw Condensate Tank 6402F		VOC	2.21
	4.60	BZ	0.02	0.04
1017	Methanol Tank 3416F	VOC	0.65	0.02
Olefins Unit No. 1 (continued):				
1018	Flare	VOC	1.79	0.43
		NO _x	1.90	8.30
		CO	9.68	42.32
		SO ₂	0.10	0.04
1019	Fugitives (4)	VOC	0.72	3.16
		BZ	0.02	0.10
1020	Naphtha Tank 6401F	VOC	8.69	18.41
		BZ	0.07	0.15
1028	Fugitives - A (4)	VOC	0.72	3.16
		BZ	0.02	0.10
1029	Fugitives - B (4)	VOC	0.72	3.16
		BZ	0.02	0.10
1030	Fugitives - C (4)	VOC	0.72	3.16
		BZ	0.02	0.10
1031	Fugitives - D (4)	VOC	0.72	3.16

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Emission *	Source	Air Contaminant	<u>Emission Rates</u>	
<u>Point No. (1)</u>	<u>Name (2)</u>	<u>Name (3)</u>	<u>lb/hr</u>	<u>TPY</u>
		BZ	0.02	0.10
1032	Fugitives - E (4)	VOC	0.72	3.16
		BZ	0.02	0.10
1033	Fugitives - F (4)	VOC	0.72	3.16
		BZ	0.02	0.10
1034	Fugitives - G (4)	VOC	0.72	3.16
		BZ	0.02	0.10
1035	Fugitives - H (4)	VOC	0.72	3.16
		BZ	0.02	0.10
1036	Fugitives - I (4)	VOC	0.72	3.16
		BZ	0.02	0.10
Olefins Unit No. 1 (continued):				
1037	Fugitives - J (4)	VOC	0.72	3.16
		BZ	0.02	0.10
1038	Fugitives - K (4)	VOC	0.72	3.16
		BZ	0.02	0.10
1039	Fugitives - L (4)	VOC	0.72	3.16
		BZ	0.02	0.10
1040	Fugitives - M (4)	VOC	0.72	3.16
		BZ	0.02	0.10
1041	Fugitives - N (4)	VOC	0.72	3.16
		BZ	0.02	0.10

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Emission *	Source	Air Contaminant	<u>Emission Rates</u>	
<u>Point No. (1)</u>	<u>Name (2)</u>	<u>Name (3)</u>	<u>lb/hr</u>	<u>TPY</u>
1042	Fugitives - O (4)	VOC	0.72	3.16
		BZ	0.02	0.10
1043	Fugitives - P (4)	VOC	0.72	3.16
		BZ	0.02	0.10
1044	Fugitives - Q (4)	VOC	0.72	3.16
		BZ	0.02	0.10
1045	Fugitives - R (4)	VOC	0.72	3.16
		BZ	0.02	0.10
1046	Reboiler No. 1	VOC	0.08	0.36
		NO _x	1.82	7.97
		CO	1.02	4.47
		TSP	0.03	0.13
		SO ₂	0.02	0.10
1047	Reboiler No. 2	VOC	0.08	0.36
		NO _x	1.82	7.97
		CO	1.02	4.47
		TSP	0.03	0.13
		SO ₂	0.02	0.10
Olefins Unit No. 1 (continued):				
1048	Slop Oil Tank 7408FA	VOC	0.54	0.07
1049	Fugitives - T (4)	VOC	0.16	0.70
		BZ	<0.01	0.02
1050	H ₂ SO ₄ Tank	H ₂ SO ₄	<0.01	<0.01

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Emission *	Source	Air Contaminant	Emission Rates	
Point No. (1)	Name (2)	Name (3)	lb/hr	TPY
1051	Flare	VOC	0.22	0.47
		NO _x	1.14	2.38
		CO	9.77	20.41
		SO ₂	0.02	0.05
		BZ	0.02	0.04
Olefins Unit No. 2:				
1054-1062, 1091	Pyrolysis Furnaces	VOC		26.59
		NO _x		720.52
		CO		319.02
		TSP		18.99
		SO ₂		14.11
1054	Pyrolysis Furnace	VOC	0.71	
		NO _x	19.29	
		CO	8.54	
		TSP	0.51	
		SO ₂	0.38	
1055	Pyrolysis Furnace	VOC	0.71	
		NO _x	19.29	
		CO	8.54	
		TSP	0.51	
		SO ₂	0.38	
1056	Pyrolysis Furnace	VOC	0.71	
		NO _x	19.29	
		CO	8.54	
		TSP	0.51	
		SO ₂	0.38	

Olefins Unit No. 2 (continued):

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Emission *	Source	Air Contaminant	<u>Emission Rates</u>	
Point No. (1)	Name (2)	Name (3)	lb/hr	TPY
1057	Pyrolysis Furnace	VOC	0.71	
		NO _x	19.29	
		CO	8.54	
		TSP	0.51	
		SO ₂	0.38	
1058	Pyrolysis Furnace	VOC	0.71	
		NO _x	19.29	
		CO	8.54	
		TSP	0.51	
		SO ₂	0.38	
1059	Pyrolysis Furnace	VOC	0.71	
		NO _x	19.29	
		CO	8.54	
		TSP	0.51	
		SO ₂	0.38	
1060	Pyrolysis Furnace	VOC	0.71	
		NO _x	19.29	
		CO	8.54	
		TSP	0.51	
		SO ₂	0.38	
1061	Pyrolysis Furnace	VOC	0.71	
		NO _x	19.29	
		CO	8.54	
		TSP	0.51	
		SO ₂	0.38	
1062	Pyrolysis Furnace	VOC	0.71	
		NO _x	19.29	
		CO	8.54	
		TSP	0.51	
		SO ₂	0.38	

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Emission *	Source	Air Contaminant	<u>Emission Rates</u>	
<u>Point No. (1)</u>	<u>Name (2)</u>	<u>Name (3)</u>	<u>lb/hr</u>	<u>TPY</u>
1063	Decoke Drum (5)	CO	34.62	15.39
		TSP	3.18	1.41
Olefins Unit No. 2 (continued):				
1064	Cooling Tower	VOC	5.28	23.15
		BZ	0.63	2.78
1065	CPI Oil/Water Separator	VOC	2.76	12.09
		BZ	0.64	2.78
1066	MAPD Regenerator	CO	17.28	0.01
1067	Flare	VOC	7.55	33.07
		NO _x	1.92	8.39
		CO	13.84	60.61
		SO ₂	0.01	0.02
1068	Fugitives - A (4)	VOC	2.01	8.78
		BZ	0.02	0.09
1069	Fugitives - B (4)	VOC	2.01	8.78
		BZ	0.02	0.09
1070	Fugitives - C (4)	VOC	2.01	8.78
		BZ	0.02	0.09
1071	Fugitives - D (4)	VOC	2.01	8.78
		BZ	0.02	0.09
1072	Fugitives - E (4)	VOC	2.01	8.78
		BZ	0.02	0.09

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Emission * Point No. (1)	Source Name (2)	Air Contaminant Name (3)	<u>Emission Rates</u>	
			<u>lb/hr</u>	<u>TPY</u>
1073	Fugitives - F (4)	VOC BZ	2.01 0.02	8.78 0.09
1074	Fugitives - G (4)	VOC BZ	2.01 0.02	8.78 0.09
1075	Fugitives - H (4)	VOC BZ	2.01 0.02	8.78 0.09
1076	Fugitives - I (4)	VOC BZ	2.01 0.02	8.78 0.09
Olefins Unit No. 2 (continued):				
1077	Fugitives - J (4)	VOC BZ	2.01 0.02	8.78 0.09
1078	Fugitives - K (4)	VOC BZ	2.01 0.02	8.78 0.09
1079	Fugitives - L (4)	VOC BZ	2.01 0.02	8.78 0.09
1080	Fugitives - M (4)	VOC BZ	2.01 0.02	8.78 0.09
1081	Fugitives - N (4)	VOC BZ	2.01 0.02	8.78 0.09
1082	Fugitives - O (4)	VOC BZ	2.01 0.02	8.78 0.09
1083	Fugitives - P (4)	VOC BZ	2.01 0.02	8.78 0.09

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Emission * Point No. (1)	Source Name (2)	Air Contaminant Name (3)	<u>Emission Rates</u>	
			<u>lb/hr</u>	<u>TPY</u>
1085	Pyrolysis Fuel Oil Tank 6499FA 1.23	VOC		2.07
1086	Pyrolysis Fuel Oil Tank 6499FB 1.23	VOC		2.07
1087	Flare	VOC	0.14	0.51
		NO _x	1.45	6.34
		CO	12.42	54.38
		SO ₂	0.02	0.08
		BZ	0.10	0.43
1088	Wash Oil Day Tank 2410F	VOC	2.60	0.10
1089	Slop Oil Tank 7408FB	VOC	2.54	0.03
1090	H ₂ SO ₄ Tank	H ₂ SO ₄	<0.01	<0.01

Olefins Unit No. 2 (continued):

1091	Pyrolysis Furnace	VOC	0.71	
		NO _x	19.29	
		CO	8.54	
		TSP	0.51	
		SO ₂	0.38	
1092	Olefins 1 Fugitives - U (4) 1.41	VOC		0.32
		BZ	0.01	0.03

Gasoline Hydrotreater Unit:

8001B	Regeneration Heater	VOC	0.03	0.01
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Emission *	Source	Air Contaminant	<u>Emission Rates</u>	
Point No. (1)	Name (2)	Name (3)	lb/hr	TPY
		NO _x	0.66	0.14
		CO	0.67	0.15
		TSP	0.15	0.03
		SO ₂	0.01	<0.01
8002B	Second Stage Feed Heater	VOC	0.02	0.09
		NO _x	0.24	1.05
		CO	0.11	0.48
		TSP	0.05	0.22
		SO ₂	0.01	0.01
8003B	Flare	VOC	1.21	4.24
		NO _x	1.80	4.93
		CO	3.60	9.83
		SO ₂	0.01	0.02
8402F	Decoke Drum	CO	3.31	0.01
8801U	Cooling Tower	VOC	1.32	5.79
		BZ	0.32	1.39
8801F	Process Fugitives (4)	VOC	0.29	1.27

Propylene Purification Unit:

PPUFUG-1	Unloading Station Fugitives (4) 2.04	VOC	0.47
PPUFUG-2	Process Area Fugitives (4) 2.72	VOC	0.62

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Emission * Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lb/hr	TPY
PPUFUG-3	Storage Spheres Fugitives (4) 0.82		VOC	0.19

- (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 General Rule 101.1
NO_x - total oxides of nitrogen
CO - carbon monoxide
TSP - total suspended particulate
SO₂ - sulfur dioxide
BZ - benzene
H₂SO₄ - sulfuric acid (98 percent)
- (4) Fugitive emission rates are an estimate only and should not be considered as a maximum allowable emission rate.
- (5) No more than two pyrolysis furnaces shall be decoked at any one time, one furnace to Decoke Drum EPN 1009 and one furnace to Decoke Drum EPN 1063.

* Emission rates are based on and the facilities are limited by the following maximum operating schedule:
Hrs/year 8,760

Dated_____