

**EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES**  
**Permit Number 46307**

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**

<b>Emission Point No. (1)</b>	<b>Source Name (2)</b>	<b>Air Contaminant Name (3)</b>	<b>Emission Rates</b>	
			<b>lbs/hour</b>	<b>TPY (4)</b>
EP-5	Plant Flare (6)	VOC	194.00	74.58
		NO <sub>x</sub>	29.29	11.52
		SO <sub>2</sub>	0.01	0.01
		CO	149.24	58.69
		BD	-----	4.42
		HRVOC	-----	15.00
EP-4	OXO Incinerator/Boiler	VOC	0.86	3.78
		NO <sub>x</sub>	9.60	42.05
		SO <sub>2</sub>	0.09	0.41
		PM	1.19	5.22
		CO	13.18	57.71

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
EP-H10	No. 1 Butylene Heater	VOC	0.30	1.30
		NO <sub>x</sub>	3.30	14.45
		SO <sub>2</sub>	0.03	0.14
		PM	0.41	1.79
		CO	4.53	19.84
EP-H11	No. 1 C.E. Steam Superheater	VOC	0.51	2.24
		SO <sub>2</sub>	0.06	0.24
		NO <sub>x</sub>	5.70	24.97
		PM	0.71	3.10
		CO	7.82	34.27
EP-H13	No. 2 OXO Butylene Heater	VOC	0.30	1.30
		NO <sub>x</sub>	3.30	14.45
		SO <sub>2</sub>	0.03	0.14
		PM	0.41	1.79
		CO	4.53	19.84
EP-H-14	No. 2 C.E. Steam Superheater	VOC	0.51	2.24
		NO <sub>x</sub>	5.70	24.97
		SO <sub>2</sub>	0.06	0.24
		PM	0.71	3.10
		CO	7.82	34.27
12DG-15	Boilerhouse Emergency Generator	VOC	0.12	0.05
		NO <sub>x</sub>	12.87	5.47
		SO <sub>2</sub>	0.85	0.36
		PM	0.91	0.39
		CO	2.77	1.18

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
3DG-14	OXO Emergency Generator	VOC	0.04	0.02
		NO <sub>x</sub>	4.62	1.96
		SO <sub>2</sub>	0.31	0.13
		PM	0.33	0.14
		CO	1.00	0.42
20G-437	Dock Pump Engine 20G-437	VOC	0.06	0.03
		NO <sub>x</sub>	1.13	0.48
		SO <sub>2</sub>	0.72	0.31
		PM	0.11	0.05
		CO	0.28	0.12
31G-2350	Diesel Water Blaster Engine	VOC	0.75	0.78
		NO <sub>x</sub>	3.04	3.16
		SO <sub>2</sub>	0.01	0.01
		PM	0.10	0.10
		CO	1.72	1.79
F-CT-1	Cooling Tower CT-1	VOC	50.40	22.08
F-CT-10	Cooling Tower CT-10	VOC	10.00	1.47
F-CT-11	Cooling Tower CT-11	VOC	10.00	0.55
F-CT-14	Cooling Tower CT-14	VOC	23.50	10.30
F-CT-3	Cooling Tower CT-3	VOC	24.40	10.67
F-CT-7	Cooling Tower CT-7	VOC	10.00	2.76
	Combined Cooling Towers CT-1 through CT-14 (7)	VOC	-----	2.59
CAT-TFR	Catalyst Transfer Hopper	PM	0.01	0.01
CAT-BH	Catalyst Baghouse	PM	0.01	0.01
F-TTR	Truck Rack Loading Facility	VOC	6.47	0.26
T-36	DIB Storage Tank 36	VOC	0.64	0.17

T-31	Tank 31	VOC	4.24	0.63
T-37	DIB Storage Tank 37	VOC	0.64	0.17
T-73	MTBE/ETBE Storage Tank 73	VOC	8.79	1.42
T-80	MeOH/EtOH Storage Tank 80	VOC	1.70	0.37
T-74	MTBE/ETBE Storage Tank 74	VOC	8.79	1.42
T-32	No. 32 Tank	VOC	0.08	0.01
T-117	PIB-1 Process Tank 117	VOC	2.28	(8)
T-118	PIB-1 Process Tank 118	VOC	2.28	(8)
T-119	PIB-1 Process Tank 119	VOC	2.28	(8)
T-IP-1	PIB-2 Process Tank 1	VOC	1.44	(8)
T-IP-2	PIB-2 Process Tank 2	VOC	1.44	(8)
T-IP-3	PIB-2 Process Tank 3	VOC	1.44	(8)
T-PIB-1	PIB-2 Storage Tank 1	VOC	1.62	(8)
T-PIB-2	PIB-2 Storage Tank 2	VOC	1.62	(8)
T-PIB-3	PIB-2 Storage Tank 3	VOC	1.62	(8)
T-PIB-4	PIB-2 Storage Tank 4	VOC	1.62	(8)
T-PIB-5	PIB-2 Storage Tank 5	VOC	1.62	(8)
T-PIB-6	PIB-2 Storage Tank 6	VOC	1.62	(8)
TNK-GRP	Tank Emissions Cap	VOC	--	7.0
E-PIBTT	PIB-1 Product Loading B Tank Trucks	VOC	(9)	(9)

E-PIBTC	PIB-1 Product Loading B Rail Cars	VOC	(9)	(9)
E-PIB2RC1	PIB-2 Product Loading Rail Cars - Station 1	VOC	(9)	(9)
E-PIB2RC2	PIB-2 Product Loading Rail Cars - Station 2	VOC	(9)	(9)
E-PIB2TT1	PIB-2 Product Loading Tank Truck - Station 1	VOC	(9)	(9)
E-PIB2TT2	PIB-2 Product Loading Tank Truck - Station 2	VOC	(9)	(9)
LOAD-GRP	Loading Emissions Cap	VOC	18.26	0.33
F-PIBPROC	PIB-1 Process Fugitives (10)	VOC	0.13	0.57
F-PIBSTOR	PIB-1 Tank Farm Fugitives (10)	VOC	0.10	0.45
F-PIB2PROC	PIB-2 Process Fugitives (10)	VOC	0.15	0.66
F-PIB2STOR	PIB-2 Tank Farm Fugitives (10)	VOC	0.31	1.35
T-P1WW1	PIB-1 Wastewater Tank 1	VOC	0.01	0.01
T-P1WW2	PIB-1 Wastewater Tank 2	VOC	0.01	0.01
T-P2WW1	PIB-2 Wastewater Tank 1	VOC	0.01	0.01
T-P2WW2	PIB-2 Wastewater Tank 2	VOC	0.01	0.01
T-33	No. 33 Tank	VOC	0.58	0.01
T-34	No. 34 Tank	VOC	0.29	0.02
T-69-1	No. 69-1 Tank	VOC	0.29	0.01
T-81	No. 81 Tank	VOC	0.58	0.05
T-82	No. 82 Tank	VOC	1.13	0.07
T-83	No. 83 Tank	VOC	1.13	0.04
T-84	No. 84 Tank	VOC	0.29	0.02
T-85	No. 85 Tank	VOC	0.29	0.01
T-86	No. 86 Tank	VOC	0.58	0.02
T-155	TEA Storage Tank	VOC	0.01	0.01

F-10A	Oil Separation	VOC	0.17	0.76
T-6F-1778	Tank 6F-2778	VOC	0.38	0.03
T-71	Methanol/Ethanol Tank	VOC	0.46	0.74
T-72	Methanol/Ethanol Tank	VOC	0.45	0.71
T-103	MTBE/ETBE Tank	VOC	0.42	1.36
T-114	MTBE/ETBE Tank	VOC	0.61	1.89
T-115	MTBE/ETBE Tank	VOC	0.61	1.89
1A	Isomerization Unit - Fugitives (5)	VOC	1.85	8.09
1B	Hydrogenation Unit - Fugitives (5)	VOC	0.02	0.10
1C	Dimethyl Formamide Unit - Fugitives (5)	VOC	4.54	19.88
1D	Diiso Unit - Fugitives (5)	VOC	1.67	7.33
2A	Fugitive Area No. 2 (5)	VOC	1.59	6.95
2B	Fugitive Area No. 2B (5)	VOC	1.31	5.73
FUG-2C	Tank Car Loading Fugitives (5)	VOC	0.45	1.98
FUG-2D	Truck Rack Loading Fugitives (5)	VOC	0.16	0.69
FUG-3	Fugitive Area No. 3 (5)	VOC	2.44	10.70
FUG-4	Fugitive Area No. 4 (5)	VOC	2.76	12.10
FUG-5	Fugitive Area No. 5 (5)	VOC	0.03	0.15
Maintenance, Start-up, and Shutdown Activities				
Plant-MSS-1	External Floating Roof Tank MSS Emissions	VOC	11.26	1.32
Plant-MSS-2	Fixed Roof Tanks - MSS Emissions	VOC	0.32	0.01
Plant-MSS-3	Fract Tanks - MSS Emissions	VOC	1.91	0.09
Plant-MSS-4	Heat Exchangers - MSS Emissions	VOC	0.22	0.01
Plant-MSS-5	Internal Floating Roof Tanks - MSS Emissions	VOC	45.02	0.32
Plant-MSS-6	Spheres - MSS Emissions	VOC	74.98	0.18
Plant-MSS-7	Towers - MSS Emissions	VOC	2.27	0.02
Plant-MSS-8	Vacuum Trucks - MSS Emissions	VOC	0.28	0.01
Plant-MSS-9	Attachment B MSS Activities	VOC	2.65	0.51

Plant-MSS-10	Attachment A MSS Activities	VOC	0.14	0.04
Plant-MSS-11	Temporary Control Device - MSS Emissions	NO <sub>x</sub>	1.64	0.59
		CO	3.22	1.16
		SO <sub>2</sub>	0.04	0.01
		VOC	12.45	0.83
		PM	0.13	0.05
		PM <sub>10</sub>	0.13	0.05
		PM <sub>2.5</sub>	0.13	0.05
Plant-MSS	Plantwide Short-term Emission Rate Allowables for Individual Chemicals	1,3 butadiene	79.47	
		butane	49.62	
		butene	52.96	
		diisobutylene	13.90	
		dimethyl formamide	1.55	
		ethyl tert-butyl ether	29.25	
		ethanol	17.27	
		furfural	1.12	
		isobutane	54.08	
		isobutylene	51.83	
		lean oil	31.48	
		methanol	23.32	
		methyl tert-butyl ether	48.89	
		pentane	3.49	
		polyisobutylene	1.19	

- (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 Title 30 Texas Administrative Code § 101.1
  - NO<sub>x</sub> - total oxides of nitrogen
  - SO<sub>2</sub> - sulfur dioxide
  - CO - carbon dioxide
  - BD - 1,3-butadiene
  - HRVOC - BD, butenes, ethylene, and propylene
  - PM - total particulate matter, suspended in the atmosphere, including PM<sub>10</sub> and PM<sub>2.5</sub>, as represented
  - PM<sub>10</sub> - total particulate matter equal to or less than 10 microns in diameter, including PM<sub>2.5</sub>, as represented

- (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.
- (6) Annual emissions of BD and total HRVOCs are limited as indicated. The allowable emission rate listed for HRVOCs from this EPN are included in the total VOC emission rate. The HRVOC CAP of 15 tons per year includes the BD emission rate.
- (7) The annual emissions of BD from all the cooling towers are limited as indicated. The VOC emission rate of each cooling tower includes BD. While short-term BD emission rates are not established, the hourly VOC emission rate of each cooling tower establishes a maximum BD short-term rate.
- (8) The total annual emission rates for PIB process and storage tanks are limited to the annual cap indicated under EPN TNK-GRP.
- (9) The total PIB product loading emission rates are limited to the hourly and annual caps indicated under EPN LOADGRP which may be loaded through either tank trucks or tank cars or both.
- (10) Fugitive emissions are an estimate only and should not be considered as a maximum allowable emission rate. Emission rate is an estimate and is enforceable through compliance with the applicable special condition(s) and permit application representations.

Date: July 28, 2011