

Emission Sources - Maximum Allowable Emission Rates

Permit Numbers 50607, PSDTX331M1, PSDTX804, and PSDTX1017M1

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 Cap	Combustion Units, Cooling Towers, Flares/Vapor Combustor, Fugitives (5), Loading, Process Vents, Storage Tanks, and Wastewater	VOC	419.33	1138.81
		Benzene	18.41	37.28
Emission Cap	Combustion Units, Flares/Vapor Combustor, and Process Vents	NO _x	205.45	832.5
		CO	548.07	1908
		SO ₂ (12)	299.51	664.33
		SO ₂ (13)	205.33	628.58
Emission Cap	Combustion Units, Cooling Towers, and Process Vents	PM/PM ₁₀	56.92	214.3
Emission Cap	Combustion Units, Flares/Vapor Combustor, Fugitives, Process Vents, and Storage Tanks	H ₂ S (12)	4.37	12.99
		H ₂ S (13)	3.35	12.6
F-028	DHT/ASU (5)	NH ₃	0.01	0.01
F-100	No. 1 Crude (5)	NH ₃	0.01	0.02
F-850	South Merox Unit (5)	NH ₃	0.01	0.01
F-1000	POU (5)	NH ₃	0.01	0.01
F-1400	Vacuum (5)	NH ₃	0.01	0.01
F-1500	HCU (5)	NH ₃	0.01	0.02
F-2000	ROSE Unit (5)	NH ₃	0.01	0.01

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F-2200	DOT/Reformate Splitter (5)	NH ₃	0.17	0.76
F-2300	ATS (5)	NH ₃	0.01	0.01
F-2300	SWS (5)	NH ₃	0.01	0.04
F-2400	FCCU (5)	NH ₃	0.04	0.17
F-2400	FCCU Gas Con (5)	NH ₃	0.01	0.01
F-2400	FCCU Merox (5)	NH ₃	0.01	0.01
F-3700	HCU (5)	NH ₃	0.01	0.01
F-3800	No. 2 HDU (5)	NH ₃	0.01	0.02
F-3900	LEU (5)	NH ₃	0.01	0.01
F-4000	No. 1 and No. 2 SRU (5)	NH ₃	0.01	0.04
H-028	Crude Charge Heater 1	NO _x	11.18	23.41
		CO	14.61	44.41
		VOC	1.10	4.80
		SO ₂	6.17	7.56
		PM/PM ₁₀	1.51	6.63
H-036	Crude Charge Heater 1	NO _x	11.18	31.56
		CO	14.61	55.54
		VOC	1.10	4.80
		SO ₂	7.95	9.23
		PM/PM ₁₀	1.51	6.63

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H-016	Vacuum Unit Charge Heater	NO _x	4.66	20.12
		CO	9.57	19.66
		VOC	0.72	3.14
		SO ₂	6.24	6.75
		PM/PM ₁₀	0.99	4.34
H-021	ROSE "DAGO" Heater	NO _x	1.31	4.71
		CO	2.69	4.71
		VOC	0.24	0.84
		SO ₂	1.18	1.60
		PM/PM ₁₀	0.33	1.17
H-022	Asphalt Heater	NO _x	0.98	4.28
		CO	1.96	3.96
		VOC	0.15	0.64
		SO ₂	1.09	1.38
		PM/PM ₁₀	0.20	0.89
H-020	Isostripper Reboiler Heater	NO _x	1.99	4.90
		CO	3.12	3.83
		VOC	0.27	0.75
		SO ₂	0.47	1.16
		PM/PM ₁₀	0.37	1.04

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B-007	"BTX" Boiler	NO _x	12.33	34.16
		CO	18.02	27.76
		VOC	1.26	4.70
		SO ₂	0.13	0.44
		PM/PM ₁₀	1.74	6.49
H-043	H043 BTX Reboil Heater	NO _x	1.34	5.88
		CO	2.69	5.50
		VOC	0.20	0.88
		SO ₂	1.64	1.90
		PM/PM ₁₀	0.28	1.22
H-044	BTX Reboil Heater	NO _x	1.83	5.75
		CO	3.65	4.93
		VOC	0.28	0.89
		SO ₂	1.50	1.68
		PM/PM ₁₀	0.39	1.22
B-004	Boiler 6F1-A & Boiler 6F1-B	NO _x	25.97	72.43
		CO	9.28	12.94
		VOC	0.80	2.23
		SO ₂	3.79	4.77
		PM/PM ₁₀	1.11	3.08

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B-006	East Plant Boiler Emissions	NO _x	13.07	49.82
		CO	7.83	12.98
		VOC	0.59	2.24
		SO ₂	3.67	4.52
		PM/PM ₁₀	0.81	3.09
H-041	DOT H2 Recycle Furnace	NO _x	1.10	2.39
		CO	1.83	2.00
		VOC	0.16	0.36
		SO ₂	0.88	0.78
		PM/PM ₁₀	0.23	0.50
H-040	Steam Methane Reformer Heater	NO _x	4.96	14.56
		CO	2.99	4.37
		VOC	0.27	0.78
		SO ₂	1.31	1.60
		PM/PM ₁₀	0.37	1.08
H-039	No. 1 SRU Hot Oil Heater	NO _x	0.69	1.60
		CO	0.50	2.17
		VOC	0.04	0.16
		SO ₂	0.33	0.31
		PM/PM ₁₀	0.05	0.23

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H-047	No. 2 SRU Hot Oil Heater	NO _x	1.39	6.07
		CO	0.14	0.15
		VOC	0.14	0.61
		SO ₂	1.21	1.30
		PM/PM ₁₀	0.19	0.84
H-015	Lubr. Oil Crude Atmospheric Heater	NO _x	1.07	4.01
		CO	1.90	3.32
		VOC	0.17	0.76
		SO ₂	0.02	0.08
		PM/PM ₁₀	0.24	1.05
H-037	HDU Charge Heater 2	NO _x	2.68	5.96
		CO	3.28	3.38
		VOC	0.26	0.58
		SO ₂	1.34	0.24
		PM/PM ₁₀	0.36	0.81
H-038	HDU Reboiler Heater 2	NO _x	1.85	4.11
		CO	2.88	3.21
		VOC	0.25	0.55
		SO ₂	0.88	0.99
		PM/PM ₁₀	0.34	0.77

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H-014	Naphtha Splitter Reboiler	NO _x	4.16	13.11
		CO	4.60	6.05
		VOC	0.34	1.09
		SO ₂	1.96	2.09
		PM/PM ₁₀	0.48	1.50
H-026	Glycol Contactor Heater	NO _x	0.33	1.30
		CO	0.24	1.04
		VOC	0.02	0.08
		SO ₂	0.16	0.17
		PM/PM ₁₀	0.02	0.11
H-034	H.C.U. Recycle Heater	NO _x	3.47	11.24
		CO	4.99	7.02
		VOC	0.37	1.21
		SO ₂	2.40	2.24
		PM/PM ₁₀	0.52	1.67
H-035	H.C.U. Debutanizer Reboiler Heater	NO _x	2.66	11.67
		CO	4.79	9.26
		VOC	0.36	1.57
		SO ₂	2.21	2.81
		PM/PM ₁₀	0.50	2.17

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H-018	H.C.U. Fractionation Heater	NO _x	4.24	10.52
		CO	2.82	3.05
		VOC	0.21	0.53
		SO ₂	1.85	0.93
		PM/PM ₁₀	0.29	0.73
H-019	H.C.U. Fractionation Heater	NO _x	2.70	8.02
		CO	1.57	2.33
		VOC	0.13	0.40
		SO ₂	1.37	1.51
		PM/PM ₁₀	0.19	0.55
H-030	No. 2 Reformer Charge Heater	NO _x	13.11	32.81
		CO	9.54	31.64
		VOC	1.03	3.12
		SO ₂	5.42	6.24
		PM/PM ₁₀	1.43	4.31
H-032	No. 2 Reformer Charge Heater	NO _x	6.27	15.99
		CO	4.34	22.86
		VOC	0.66	2.02
		SO ₂	3.58	4.60
		PM/PM ₁₀	0.91	2.80

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H-033	No. 2 Reformer Stab. Reboiler	NO _x	1.31	4.00
		CO	2.04	3.12
		VOC	0.18	0.54
		SO ₂	0.84	1.03
		PM/PM ₁₀	0.24	0.74
H-045	DHT Charge Heater	NO _x	2.05	8.98
		CO	2.95	5.53
		VOC	0.22	0.97
		SO ₂	1.93	1.82
		PM/PM ₁₀	0.31	1.34
H-046	Fractionator Feed Heater	NO _x	2.88	12.59
		CO	4.59	9.06
		VOC	0.34	1.51
		SO ₂	2.87	3.11
		PM/PM ₁₀	0.48	2.09
H-023	Tracing Oil Heater	NO _x	0.09	0.27
		CO	0.15	0.22
		VOC	0.01	0.04
		SO ₂	0.08	0.08
		PM/PM ₁₀	0.02	0.06

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H-004	Lubr. HDS Charge Heater	NO _x	0.35	1.54
		CO	0.76	3.32
		VOC	0.05	0.23
		SO ₂	0.01	0.03
		PM/PM ₁₀	0.07	0.32
H-031	No. 1 HDU Stripper Reboiler Heater	NO _x	0.60	2.64
		CO	1.21	5.29
		VOC	0.09	0.40
		SO ₂	0.79	0.85
		PM/PM ₁₀	0.13	0.55
H-010	No. 1 HDU Reactor Charge Heater	NO _x	0.79	3.44
		CO	1.57	6.89
		VOC	0.12	0.52
		SO ₂	1.03	1.11
		PM/PM ₁₀	0.16	0.71
H-011	No. 1 Ref. Stabilizer Reboiler Heater	NO _x	0.52	2.26
		CO	0.83	3.61
		VOC	0.06	0.27
		SO ₂	0.54	0.59
		PM/PM ₁₀	0.09	0.37

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H-012	Reformer Charge Heater	NO _x	5.41	23.72
		CO	7.56	16.86
		VOC	0.57	2.48
		SO ₂	4.94	5.34
		PM/PM ₁₀	0.78	3.43
H-013	No. 1 Stabilizer Reboiler Heater	NO _x	0.99	4.34
		CO	0.66	1.99
		VOC	0.05	0.22
		SO ₂	0.44	0.47
		PM/PM ₁₀	0.07	0.30
B-005	West Plant No. 2 Boiler	NO _x	3.24	14.19
		CO	3.88	8.90
		VOC	0.29	1.27
		SO ₂	2.53	2.74
		PM/PM ₁₀	0.40	1.76
S-007, S-008, S-031, S-032, S-033, S-034, S-035, S-036, S-037, S-038, S-039, S-040, S-041, S-042, S-043, S-044, S-100, S-101, S-102, S-108, S-114, S-115, S-116, S-119, S-120, S-127, S-128, S-129, S-130, S-200, S-201, S-206, S-207, S-208, S-209, S-210, S-211, S-212, S-213, S-214, S-215, S-216, S-217, S-218, S-219,	Subcaps for Storage Tanks	VOC	83.37	132.4

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S-220, S-221, S-222, S-223, S-224, S-225, S-300, S-301, S-302, S-303, S-304, S-305, S-306, S-308, S-309, S-310, S-311, S-312, S-313, S-314, S-315, S-316, S-317, S-318, S-331, S-332, S-333, S-334, S-335, S-336, S-337 S-338, S-339, S-340, S-401 S-402, S-680-6, S-680-7, S-680-8, S-680-9				
FL-003, FL-004, FL-006, FL-501, FL-005	Subcaps for Flares	NO _x	16.27	17.32
		CO	84.41	90.11
		VOC	74.9	118.63
		SO ₂ (12)	99.48	42.17
		SO ₂ (13)	5.30	6.42
F-28, F-100 (#1 Crude), F-100 (Desalter), F-400, F-500, F-620, F-660 (EPltFlareE), F-660 (EPltFlareS), F-660 (West Plant Flare System), F-700, F-820, F-830S, F-850 (S Merox Unit), F-850 (Tank Farm), F-900, F-1000, F-1200, F-1400, F-1500, F-2000, F-2100, F-2200 (DOT/Ref Splitter), F-2200 (East Plant Alky Splitter), F-2300 (ATS), F-2300 (SWS), F-2400 (FCCU), F-2400	VOC Subcaps for Equipment Fugitives (5)(10)	VOC	133.34	584.38

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(FCCU Gas Con), F-2400 (FCCU Merox), F-2500, F-2600, F-2700, F-2800 (EP Cool Twr), F-2800 (EP Utilities), F-3700 (HCU), F-3700 (HCU Hot Oil Drum), F-3800, F-3900 (LEU), F-3900 (HCU), F-4000, F-4300, F-5400, F-2600N, F-660N, F-660 (EPltFlareW), F-680 (WWTP Tanks), F-680W, F-800E, F-800W, F-830 (RAIL), F-830E, F-830N, F-830 (West Rack), F-830W, F-850N, F-850S, F-ROSE				
F-0670	West Plant Cooling Tower	VOC	0.25	1.10
		PM/PM ₁₀	0.36	1.58
F-2810	East Plant Cooling Tower	VOC	1.68	7.36
		PM/PM ₁₀	2.40	10.52
F-3670	No. 2 West Plant Cooling Tower	VOC	0.59	2.57
		PM/PM ₁₀	0.84	3.69
F-0680	F-0680 Open-Top Biotreatment	VOC	23.08	36.23
F-0671	No. 2 API Separator	VOC	0.48	0.95
F-0682	Crude Unit Sump	VOC	3.27	6.50
F-0683	No. 1 Reformer Sump	VOC	1.66	3.31
F-0684	600 Unit Sump	VOC	0.01	0.03

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F-0685	R. R. Rack Sump	VOC	0.10	0.20
F-0686	Truck Loading Sump	VOC	0.09	0.18
F-0687	Landfarm	VOC	2.26	4.50
F-0688	Vacuum Unit Sump	VOC	2.08	4.14
F-0689	Crude Unload Sump	VOC	0.24	0.47
F-3110	No. 2 Reformer Sump	VOC	0.59	1.18
V-006	No. 1 Reformer Regeneration	CO	37.5	1.50
		VOC	1.40	0.06
		Cl ₂	0.40	0.02
V-007	No. 2 Reformer Regeneration	CO	5.00	14.02
		VOC	0.04	0.13
		Cl ₂	0.01	0.04
V-010	FCCU Regeneration Vent	NO _x	62.69	96.32
		CO	195.47	184.29
		VOC	6.16	14.51
		SO ₂	43.64	52.65
		PM/PM ₁₀	30.00	69.98
		H ₂ SO ₄	13.69	59.96
V-008, V-009	Subcaps for Sulfur Plants	NO _x	6.16	14.12
		CO	29.09	116.32
		VOC	12.21	38.43
		SO ₂	48.13	98.22
		PM/PM ₁₀	0.37	1.58
		TRS	2.26	9.94

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V-003	A.T.S. Secondary Absorber	SO ₂	0.09	0.01
L-001	Oil Truck Loading Rack	VOC	0.02	0.02
L-002	Gasoline Truck Loading Rack	VOC	16.08	6.48
L-004	Tank Car Loading Rack	VOC	0.01	0.01
L-005	Aromatic Rail Load Rack Fugitives	VOC	7.56	2.05
VCU-1	Loading Rack Vapor Combustor	NO _x	0.86	0.54
		CO	2.50	1.56
		VOC	9.38	5.78

Planned Maintenance, Startup, and Shutdown (MSS) Emission Limitations

Cooling Towers, Combustion Units, Flares/Vapor Combustor Fugitives (5), Loading, Process Vents, Storage Tanks, and Wastewater		Rates From January 1, 2010 Through December 31, 2011		
		VOC (6) (7)	4709.54	260.63
		NO _x (6) (7)	302.76	43.07
		CO (6) (7)	790.39	173.64
		SO ₂ (6) (7)	868.02	237.24
		PM/PM ₁₀ /PM _{2.5} (6) (7)	3.14	0.57
		H ₂ S (6) (7)	2.37	2.44
		Benzene (6) (7) (9)	89.50	4.89
		CS ₂ (7)	0.33	0.02
		COS (7)	1.89	0.11
		Rates Beginning January 1, 2012		
		VOC (6) (8)	4711.24	99.82
		NO _x (6) (8)	305.53	17.71
		CO (6) (8)	804.36	42.14
		SO ₂ (6) (8)	894.13	61.54

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		PM/PM ₁₀ /PM _{2.5} (6) (8)	3.14	0.57
		H ₂ S (6) (8)	2.65	0.52
		Benzene (6) (8) (9)	90.70	2.90
		CS ₂ (8)	0.33	0.02
		COS (8)	1.89	0.11

- (1) Emission point identification - either specific equipment designation or emission point number (EPN) from a plot plan.
- (2) Specific point source names. For fugitive sources, use an 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
 CO - carbon monoxide
 SO₂ - sulfur dioxide
 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
 Cl₂ - chlorine
 COS - carbonyl sulfide
 CS₂ - carbon disulfide
 H₂S - hydrogen sulfide
 H₂SO₄ - sulfuric acid
 NH₃ - ammonia
 TRS - total reduced sulfur
- (4) Compliance with annual emission limits (tons per year) is based on a 12 month rolling period.
- (5) Emission rate is an estimate and compliance is demonstrated by meeting the requirements of the applicable special conditions and permit application representations.
- (6) Planned MSS VOC, NO_x, CO, SO₂, PM₁₀, H₂S, and Benzene allowable emissions are NOT included in the Emission Caps (Normal Operations) allowable emissions.
- (7) The MSS emission rates from January 1, 2010 through December 31, 2010, shall be the sum of the monthly MSS emissions for calendar year (CY) 2010. The MSS emissions for this period shall not include the MSS emissions prior to January 1, 2010. Beginning January 1, 2011, MSS emissions shall be based on a rolling 12-month period.
- (8) The MSS emission rates beginning January 1, 2012 through December 31, 2012, shall be the sum of the monthly MSS emissions for CY 2012. The MSS emissions for this period shall not include the MSS emissions prior to January 1, 2012. Beginning January 1, 2013, MSS emissions shall be based on a rolling 12-month period.
- (9) Benzene MSS allowables are included in the VOC allowables.
- (10) Ammonia fugitive allowable emissions are specified by EPN.
- (11) These emission caps have been carried forward from the flexible permit and do not include MSS emissions. The only emission cap that is limiting (lower than the sum of the subcaps and individual emission rate limits for that air contaminant) is the hourly cap for NO_x.
- (12) Effective through December 31, 2011.
- (13) Effective January 1, 2012.

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Dated: December 27, 2011