

## 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)
Normal Operations Emission Cap (10)	Combustion Units, Cooling Towers, Flares/Vapor Combustor, Fugitives (5), Loading, Process Vents, Storage Tanks, and Wastewater	Benzene	10.63	11.69
Normal Operations Emission Cap (10)	Combustion Units, Flares/Vapor Combustor, Fugitives, Process Vents, and Storage Tanks	H <sub>2</sub> S	2.84	6.88
H-028	Crude Charge Heater 1 (100-H1)	NO <sub>x</sub>	11.18	23.41
		CO	14.61	44.41
		VOC	1.10	4.80
		SO <sub>2</sub>	15.53	14.52
		PM	1.51	6.63
		PM <sub>10</sub>	1.51	6.63
		PM <sub>2.5</sub>	1.51	6.63
H-036	Crude Charge Heater 2 (100-H2)	NO <sub>x</sub>	11.18	31.56
		CO	14.61	55.54
		VOC	1.10	4.80
		SO <sub>2</sub>	13.53	14.52
		PM	1.51	6.63
		PM <sub>10</sub>	1.51	6.63
		PM <sub>2.5</sub>	1.51	6.63

Emission Sources - Maximum Allowable Emission Rates

H-016	Vacuum Unit Charge Heater (14-H1401)	NO <sub>x</sub>	4.95	21.66
		CO	8.43	18.45
		VOC	0.76	3.34
		SO <sub>2</sub>	9.41	10.10
		PM	1.05	4.62
		PM <sub>10</sub>	1.05	4.62
		PM <sub>2.5</sub>	1.05	4.62
H-021	ROSE "DAO" Heater (160-H1)	NO <sub>x</sub>	1.90	8.31
		CO	2.41	5.27
		VOC	0.22	0.96
		SO <sub>2</sub>	2.70	2.89
		PM	0.30	1.32
		PM <sub>10</sub>	0.30	1.32
		PM <sub>2.5</sub>	0.30	1.32
H-022	Asphalt Heater (160-H2)	NO <sub>x</sub>	0.98	4.22
		CO	1.62	3.51
		VOC	0.15	0.64
		SO <sub>2</sub>	1.81	1.92
		PM	0.20	0.88
		PM <sub>10</sub>	0.20	0.88
		PM <sub>2.5</sub>	0.20	0.88

Emission Sources - Maximum Allowable Emission Rates

H-020	Isostripper Reboiler Heater (440-H1)	NO <sub>x</sub>	1.99	4.90
		CO	3.08	3.79
		VOC	0.27	0.67
		SO <sub>2</sub>	1.90	1.53
		PM	0.37	0.92
		PM <sub>10</sub>	0.37	0.92
		PM <sub>2.5</sub>	0.37	0.92
B-007	"BTX" Boiler (54-F1)	NO <sub>x</sub>	12.33	34.16
		CO	18.02	27.76
		VOC	1.26	4.70
		SO <sub>2</sub>	0.17	0.48
		PM	1.74	6.49
		PM <sub>10</sub>	1.74	6.49
		PM <sub>2.5</sub>	1.74	6.49
H-043	Reformate Splitter Heater No. 1. (54-H101)	NO <sub>x</sub>	4.27	9.86
		CO	4.24	4.90
		VOC	0.38	0.89
		SO <sub>2</sub>	4.73	2.68
		PM	0.53	1.22
		PM <sub>10</sub>	0.53	1.22
		PM <sub>2.5</sub>	0.53	1.22

Emission Sources - Maximum Allowable Emission Rates

H-044	Reformate Splitter Heater No. 2 (54-H102)	NO <sub>x</sub>	1.78	5.75
		CO	3.03	4.90
		VOC	0.27	0.89
		SO <sub>2</sub>	3.38	2.68
		PM	0.38	1.22
		PM <sub>10</sub>	0.38	1.22
		PM <sub>2.5</sub>	0.38	1.22
B-004	Boiler 6F1-A and Boiler 6F1-B (6F1-A & 6F1-B)	NO <sub>x</sub>	25.97	72.43
		CO	9.18	12.80
		VOC	0.80	2.23
		SO <sub>2</sub>	5.66	5.16
		PM	1.11	3.08
		PM <sub>10</sub>	1.11	3.08
		PM <sub>2.5</sub>	1.11	3.08

Emission Sources - Maximum Allowable Emission Rates

B-006	East Plant Boiler (6-F2)	NO <sub>x</sub>	13.07	49.82
		CO	6.81	12.98
		VOC	0.59	2.24
		SO <sub>2</sub>	0.08	0.23
		PM	0.81	3.09
		PM <sub>10</sub>	0.81	3.09
		PM <sub>2.5</sub>	0.81	3.09
H-041	DOT H <sub>2</sub> Recycle Furnace (F2201)	NO <sub>x</sub>	3.40	5.70
		CO	2.90	2.43
		VOC	0.26	0.44
		SO <sub>2</sub>	3.24	1.33
		PM	0.36	0.60
		PM <sub>10</sub>	0.36	0.60
		PM <sub>2.5</sub>	0.36	0.60
H-039	No. 1 SRU Hot Oil Heater (H101)	NO <sub>x</sub>	0.69	1.60
		CO	0.43	0.50
		VOC	0.04	0.08
		SO <sub>2</sub>	0.27	0.20
		PM	0.05	0.11
		PM <sub>10</sub>	0.05	0.11
		PM <sub>2.5</sub>	0.05	0.11
H-047	No. 2 SRU Hot Oil Heater (H401)	NO <sub>x</sub>	1.84	6.58
		CO	2.06	3.69
		VOC	0.18	0.65

Emission Sources - Maximum Allowable Emission Rates

		SO <sub>2</sub>	2.28	2.00
		PM	0.25	0.91
		PM <sub>10</sub>	0.25	0.91
		PM <sub>2.5</sub>	0.25	0.91

Emission Sources - Maximum Allowable Emission Rates

H-015A	Lubricating Oil Crude Atmospheric Heater (H1001)	NO <sub>x</sub>	0.58	2.53
		CO	1.01	2.20
		VOC	0.09	0.38
		SO <sub>2</sub>	0.02	0.04
		PM	0.12	0.53
		PM <sub>10</sub>	0.12	0.53
		PM <sub>2.5</sub>	0.12	0.53
H-015B	Lubricating Oil Crude Atmospheric Heater (H1002)	NO <sub>x</sub>	0.32	1.41
		CO	0.55	1.23
		VOC	0.05	0.22
		SO <sub>2</sub>	0.01	0.03
		PM	0.06	0.30
		PM <sub>10</sub>	0.06	0.30
		PM <sub>2.5</sub>	0.06	0.30
H-037	HDU Charge Heater 2 (H101)	NO <sub>x</sub>	2.68	6.72
		CO	3.02	3.78
		VOC	0.26	0.66
		SO <sub>2</sub>	1.86	1.52
		PM	0.36	0.91
		PM <sub>10</sub>	0.36	0.91
		PM <sub>2.5</sub>	0.36	0.91
H-038	HDU Reboiler Heater 2 (H102)	NO <sub>x</sub>	1.85	4.65
		CO	2.86	3.60
		VOC	0.25	0.63

Emission Sources - Maximum Allowable Emission Rates

H-014	Crude Charge Heater 3 (H1102)	SO <sub>2</sub>	1.76	1.45
		PM	0.34	0.87
		PM <sub>10</sub>	0.34	0.87
		PM <sub>2.5</sub>	0.34	0.87
		NO <sub>x</sub>	4.16	13.11
		CO	5.51	8.69
		VOC	0.50	1.58
H-034	H.C.U. Recycle Heater (H1401)	SO <sub>2</sub>	6.16	4.76
		PM	0.69	2.18
		PM <sub>10</sub>	0.69	2.18
		PM <sub>2.5</sub>	0.69	2.18
		NO <sub>x</sub>	3.47	11.24
		CO	4.29	6.95
		VOC	0.37	1.21
		SO <sub>2</sub>	2.64	2.80
		PM	0.52	1.67
		PM <sub>10</sub>	0.52	1.67
		PM <sub>2.5</sub>	0.52	1.67



Emission Sources - Maximum Allowable Emission Rates

H-035	H.C.U. Debutanizer Reboiler Heater (H1402)	NO <sub>x</sub>	3.39	11.67
		CO	5.24	9.02
		VOC	0.46	1.57
H-018	H.C.U. Fractionation Heater (H1501A)	SO <sub>2</sub>	3.23	3.63
		PM	0.63	2.17
		PM <sub>10</sub>	0.63	2.17
		PM <sub>2.5</sub>	0.63	2.17
		NO <sub>x</sub>	2.40	10.51
		CO	3.71	16.22
		VOC	0.32	1.42
H-019	H.C.U. Fractionation Heater (H1501B)	SO <sub>2</sub>	2.28	3.27
		PM	0.45	1.96
		PM <sub>10</sub>	0.45	1.96
		PM <sub>2.5</sub>	0.45	1.96
		NO <sub>x</sub>	2.40	8.02
		CO	3.71	6.20
		VOC	0.32	1.09
		SO <sub>2</sub>	2.28	2.50
		PM	0.45	1.50
		PM <sub>10</sub>	0.45	1.50
		PM <sub>2.5</sub>	0.45	1.50

Emission Sources - Maximum Allowable Emission Rates

H-045	DHT Charge Heater (H28001)	NO <sub>x</sub>	1.91	8.37
		CO	2.28	4.99
		VOC	0.21	0.91
H-046	Fractionator Feed Heater (H28002)	SO <sub>2</sub>	2.55	2.73
		PM	0.28	1.25
		PM <sub>10</sub>	0.28	1.25
		PM <sub>2.5</sub>	0.28	1.25
		NO <sub>x</sub>	2.69	11.76
		CO	3.56	7.79
		VOC	0.32	1.41
H-023	Dowtherm Heater (160-H3)	SO <sub>2</sub>	3.97	4.26
		PM	0.44	1.95
		PM <sub>10</sub>	0.44	1.95
		PM <sub>2.5</sub>	0.44	1.95
		NO <sub>x</sub>	0.09	0.27
		CO	0.15	0.22
		VOC	0.01	0.04
		SO <sub>2</sub>	0.17	0.13
		PM	0.02	0.06
		PM <sub>10</sub>	0.02	0.06
		PM <sub>2.5</sub>	0.02	0.06

Emission Sources - Maximum Allowable Emission Rates

H-004	Process Oil Treater (POT) (H401)	NO <sub>x</sub>	0.41	1.79
		CO	0.72	3.12
		VOC	0.06	0.27
H-031	No. 1 HDU Stripper Reboiler Heater (H501)	SO <sub>2</sub>	0.01	0.03
		PM	0.09	0.37
		PM <sub>10</sub>	0.09	0.37
		PM <sub>2.5</sub>	0.09	0.37
		NO <sub>x</sub>	0.79	3.44
		CO	1.32	5.79
		VOC	0.12	0.51
H-010	No. 1 HDU Reactor Charge Heater (H502)	SO <sub>2</sub>	1.46	1.57
		PM	0.16	0.71
		PM <sub>10</sub>	0.16	0.71
		PM <sub>2.5</sub>	0.16	0.71
		NO <sub>x</sub>	1.05	4.59
		CO	1.76	7.71
		VOC	0.16	0.69
		SO <sub>2</sub>	1.95	2.09
		PM	0.22	0.96
		PM <sub>10</sub>	0.22	0.96
		PM <sub>2.5</sub>	0.22	0.96

Emission Sources - Maximum Allowable Emission Rates

H-030	No. 2 Reformer Charge Heaters (H201, H203)	NO <sub>x</sub>	19.06	-
		CO	13.63	-
		VOC	2.38	-
H-032	No. 2 Reformer Charge Heater (H202)	SO <sub>2</sub>	16.78	-
		PM	3.29	-
		PM <sub>10</sub>	3.29	-
		PM <sub>2.5</sub>	3.29	-
		NO <sub>x</sub>	12.27	-
		CO	11.16	-
		VOC	0.97	-
H-033	No. 2 Reformer Stab. Reboiler (H205)	SO <sub>2</sub>	6.87	-
		PM	1.35	-
		PM <sub>10</sub>	1.35	-
		PM <sub>2.5</sub>	1.35	-
		NO <sub>x</sub>	2.25	-
		CO	3.48	-
		VOC	0.30	-
H-012	No.1 Reformer Charge Heaters (H504, H505A)	SO <sub>2</sub>	2.14	-
		PM	0.42	-
		PM <sub>10</sub>	0.42	-
		PM <sub>2.5</sub>	0.42	-
		NO <sub>x</sub>	5.41	-
		CO	6.34	-

Emission Sources - Maximum Allowable Emission Rates

H-013	No. 1 Stabilizer Reboiler Heater (H506)	VOC	0.57	-
		SO <sub>2</sub>	7.00	-
		PM	0.78	-
		PM <sub>10</sub>	0.78	-
		PM <sub>2.5</sub>	0.78	-
		NO <sub>x</sub>	1.86	-
		CO	1.05	-
H-030, H-032, H-033, H-012, and	Subcaps for No.1 and No. 2 Reformer Unit	VOC	0.09	-
		SO <sub>2</sub>	1.15	-
		PM	0.13	-
		PM <sub>10</sub>	0.13	-
		PM <sub>2.5</sub>	0.13	-
		NO <sub>x</sub>	-	91.88
		CO	-	59.57
S-007, S-008, S-033, S-036, S-039, S-044, S-119, S-120, S-130, S-211, S-212, S-213, S-214, S-215, S-216, S-220, S-221, S-222, S-223, S-224, S-225, S-316, S-319, S-403, S-680-6, S-680-7, S-680-8, S-680-9,	Subcaps for Storage Tanks	VOC	-	10.46
		SO <sub>2</sub>	-	26.77
		PM	-	14.46
		PM <sub>10</sub>	-	14.46
		PM <sub>2.5</sub>	-	14.46
		VOC	14.08	18.67

Emission Sources - Maximum Allowable Emission Rates

		PM <sub>2.5</sub>	0.42	-
H-012	No.1 Reformer Charge Heaters (H504, H505A, H505B)	NO <sub>x</sub>	5.41	-
		CO	6.34	-
		VOC	0.57	-
		SO <sub>2</sub>	7.00	-
		PM	0.78	-
		PM <sub>10</sub>	0.78	-
		PM <sub>2.5</sub>	0.78	-
H-013	No. 1 Stabilizer Reboiler Heater (H506)	NO <sub>x</sub>	1.86	-
		CO	1.05	-
		VOC	0.09	-
		SO <sub>2</sub>	1.15	-
		PM	0.13	-
		PM <sub>10</sub>	0.13	-
		PM <sub>2.5</sub>	0.13	-
H-030, H-032, H-033, H-012, and H-013	Subcaps for No.1 and No.2 Reformer Unit Heaters (H504, H505A, H505B, H506, H201, H202, H203, H204, H205)	NO <sub>x</sub>	-	91.88

Emission Sources - Maximum Allowable Emission Rates

		CO	-	59.57
		VOC	-	10.46
		SO <sub>2</sub>	-	26.77
		PM	-	14.46
		PM <sub>10</sub>	-	14.46
		PM <sub>2.5</sub>	-	14.46
S-007, S-008, S-033, S-036, S-039, S-044, S-119, S-120, S-130, S-211, S-212, S-213, S-214, S-215, S-216, S-220, S-221, S-222, S-223, S-224, S-225, S-316, S-319, S-403, S-680-6, S-680-7, S-680-8, S-680-9, S-680-21	Subcaps for Storage Tanks	VOC	14.08	18.67
FL-003, FL-004, FL-006 and FL-501	Subcaps for Flares	NO <sub>x</sub>	15.59	18.83
		CO	80.33	96.98
		VOC	63.01	117.58
		SO <sub>2</sub>	5.17	7.00

Emission Sources - Maximum Allowable Emission Rates

F-28, F-100 (#1 Crude, Desalter),  F-0670	VOC and NH <sub>3</sub> Subcaps for Equipment Fugitives  No.1 West Plant Cooling Tower (5)	VOC	130.44	571.34
		NH <sub>3</sub>	0.01	0.04
		VOC	0.25	1.10
		PM	0.36	1.58
		PM <sub>10</sub>	0.14	0.60
		PM <sub>2.5</sub>	0.01	0.01
F-2810	East Plant Cooling Tower (5)	VOC	1.68	7.36
F-3670	No. 2 West Plant Cooling Tower (5)	PM	2.40	10.52
		PM <sub>10</sub>	0.36	1.58
		PM <sub>2.5</sub>	0.01	0.01
		VOC	0.59	2.58
		PM	0.84	3.68



Emission Sources - Maximum Allowable Emission Rates

		PM <sub>10</sub>	0.32	1.41
F-0680	F-0680 Open-Top Rintreatment	PM <sub>2.5</sub>	0.01	0.01
F-0671	No. 2 API Separator	VOC	23.08	36.23
F-0682	Crude Unit Sump	VOC	0.48	0.95
		VOC	3.70	6.50
F-0683	No. 1 Reformer Sump	VOC	1.66	3.31
F-0684	600 Unit Sump	VOC	0.01	0.03
F-0685	R. R. Rack Sump	VOC	0.10	0.20
F-0686	Truck Loading Sump	VOC	0.09	0.18
F-0687	Land Farm	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

Emission Sources - Maximum Allowable Emission Rates

V-006	No. 1 Reformer Regeneration Vent	CO	37.50	1.50
		Cl <sub>2</sub>	0.40	0.02
		VOC	1.40	0.06
V-007	No. 2 Reformer Regeneration Vent	CO	5.00	14.02
		Cl <sub>2</sub>	0.01	0.04
		VOC	0.04	0.13
V-010	FCCU Regeneration Vent	NO <sub>x</sub>	62.69	28.82
		CO	195.47	184.29
		VOC	6.16	14.51
		SO <sub>2</sub>	43.64	52.65
		PM	30.00	69.98
		PM <sub>10</sub>	25.11	58.58
		PM <sub>2.5</sub>	25.11	58.58
		H <sub>2</sub> SO <sub>4</sub>	13.69	59.96
		O <sub>3</sub>	7.22	31.62
		HCN	19.49	45.47
V-008, V-009	Subcaps for Sulfur Plants	NO <sub>x</sub>	6.83	19.32
		CO	29.09	82.32
		VOC	12.21	34.56
		SO <sub>2</sub>	38.88	98.27
		PM	0.37	1.02
		PM <sub>10</sub>	0.37	1.02
		PM <sub>2.5</sub>	0.37	1.02

Emission Sources - Maximum Allowable Emission Rates

L-001  L-002  L-004	Oil Truck Loading Rack	TRS	2.63	9.51	
	Gasoline Truck Loading Rack	VOC	0.02	0.02	
		VOC	9.09	3.46	
		VOC	0.01	0.01	
VCU-1  <b>Planned Maintenance.</b> Cooling Towers, Combustion Units	Loading Rack Vapor Combustor	NO <sub>x</sub>	3.01	0.71	
		CO	8.75	2.07	
		VOC	17.98	6.88	
		VOC (6) (7)	4,711.24	75.49	
		NO <sub>x</sub> (6) (7)	305.53	16.34	
		CO (6) (7)	1,202.92	43.12	
		SO <sub>2</sub> (6) (7)	894.13	61.04	
			PM (6) (7)	4.54	0.66
			PM <sub>10</sub> (6) (7)	4.54	0.66
		PM <sub>2.5</sub> (6) (7)	4.54	0.66	
		H <sub>2</sub> S (6) (7)	2.65	0.51	
		Benzene (6) (7) (8)	90.70	2.65	
		CS <sub>2</sub> (7)	0.33	0.02	
COS (7) 1.89 0.11					

Emission Sources - Maximum Allowable Emission Rates

<b>Standard Permit (SP) sources incorporated by reference. Sources remain authorized by the SP(s) as listed below:</b>					
<b>Registration Number 83511</b> B-010	CO	- carbon monoxide			
	SO <sub>2</sub>	- sulfur dioxide			
	PM	- total particulate matter, suspended in the atmosphere, including PM <sub>10</sub> and PM <sub>2.5</sub>			
	PM <sub>10</sub>	- particulate matter equal to or less than 10 microns in diameter			
	PM <sub>2.5</sub>	- particulate matter equal to or less than 2.5 microns in diameter		22.34	
	Cl <sub>2</sub>	- chlorine			
	COS	- carbonyl sulfide	CO	12.31	53.93
	CS <sub>2</sub>	- carbon disulfide			
	H <sub>2</sub> S	- hydrogen sulfide	VOC	1.83	8.03
	H <sub>2</sub> SO <sub>4</sub>	- sulfuric acid			
NH <sub>3</sub>	- ammonia	NH <sub>3</sub>	1.49	6.55	
TRS	- total reduced sulfur				
O <sub>3</sub>	- ozone				
HCN	- hydrogen cyanide				
(4)	Compliance with annual emission limits (tons per year) is based on a 12 month rolling period.		PM	2.53	11.10
(5)	Emission rate is an estimate and compliance is demonstrated by meeting the requirements of the applicable special conditions and permit application representations.		PM <sub>10</sub>	2.53	11.10
(6)	Planned MSS VOC, NO <sub>x</sub> , CO, SO <sub>2</sub> , PM <sub>10</sub> , H <sub>2</sub> S, and Benzene allowable emissions are NOT included in the Normal Operations Emission Caps.		PM <sub>2.5</sub>	2.53	11.10
(7)	Beginning January 1, 2013, MSS emissions shall be based on a rolling 12-month period.				
(8)	Benzene MSS allowables are included in the VOC allowables.				
(9)	Ammonia fugitive allowable emissions are specified by EPN.				
(10)	These emission caps have been carried forward from the flexible permit and do not include MSS emissions. The caps have been lowered to equal the sum of the normal operation individual limits and subcaps. The caps do not include emissions from EPN B-010, incorporated by reference from Standard Permit 83511.				

Dated: October 25, 2017