Emission Sources - Maximum Allowable Emission Rates

Permit Number 49138

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)
See Attachment D	See Attachment D	Final VOC MSS Cap	1427.29	99.07
		Final VOC Flex Cap	5161.89	4171.95
See Attachment D	See Attachment D	Final NO_x Emission Cap	948.18	34.97
		Final NO_x Flex Cap	1028.46	1460.48
See Attachment D	See Attachment D	Final CO MSS Cap	55926.75	37.70
		Final CO Flex Cap	3921.32	7569.18
See Attachment D	See Attachment D	Final SO_2 MSS Cap	60.48	3.21
		Final SO_2 Flex Cap	15649.93	2160.47
See Attachment D	See Attachment D	Final $PM_{2.5}$/ PM_{10} MSS Cap***	28.42	6.23
		Final $PM_{2.5}$/ PM_{10} Flex Cap***	824.92	1482.72
See Attachment D	See Attachment D	Final PM MSS Cap	28.42	6.23
		Final PM Flex Cap	1020.67	1916.17

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See Attachment D	See Attachment D	Final H_2S MSS Cap	3.03	0.70
		Final H_2S Flex Cap	157.03	15.61
See Attachment D	See Attachment D	Final H_2SO_4 MSS Cap	0.92	0.31
		Final H_2SO_4 Flex Cap	119.95	304.97
See Attachment D	See Attachment D	Final NH_3 MSS Cap	663.78	1.10
		Final NH_3 Flex Cap	115.53	367.97
04STK_001	Coker East Heater (B-101-B)	NO_x	9.80	31.10
04STK_002	Coker Middle Heater (B-101-A)	NO_x	9.80	32.32
04STK_003	Coker West Heater (B-101-C)	NO_x	9.80	30.22
04STK_004	Coker Far West Heater(BA-3000)	NO_x	13.50	38.79
05STK_001	CUB Atmospheric Heater (H-3101)	NO_x	94.32	344.27

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05STK_002	CUB South Vacuum Heater (H-3102)	NO_x	17.90	62.50
05STK_004	CUB North Vacuum Heater (H-2001)	NO_x	14.40	50.60
06STK_002	FCC Feed Preheater Heater (B-2)	NO_x	20.15	88.27
08STK_002	GP5E No. 2 Regenerator Heater	NO_x	2.10	6.13
08STK_003	GP5E Propane Dryer Heater	NO_x	0.14	0.62
15STK_001	CHD1 Charge Heater (B-1)	NO_x	16.65	47.04
20STK_001	HDC1st Stage West Heater (H-3301)	NO_x	1.36	4.38
20STK_002	HDC 1st Stage East Heater (H-3302)	NO_x	3.00	12.10
20STK_003	HDC 2nd Stage Heater (H-3303)	NO_x	3.00	12.10
20STK_004	HDC Stabilizer Heater (H-3304)	NO_x	11.76	49.93

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20STK_005	HDC Splitter Heater (H-3305)	NO_x	8.02	19.15
25STK_001	Isom Pretreater Charge Heater (B-1)	NO_x	5.10	17.08
25STK_003	Isom Reactor Charge Heater (B-401)	NO_x	2.50	7.88
25STK_004	Isom Regeneration Heater (B-402)	NO_x	0.40	1.75
27STK_001	PTR3 Pretreater Heater (H-3401)	NO_x	11.04	48.36
27STK_002	PTR3 Stripper Reboiler (H-3402)	NO_x	8.36	36.62
27STK_003	PTR3 Reformer Heater (H-3403,4,5,6)	NO_x	77.40	211.03
27STK_004	PTR3 Debutanizer Reboiler(H-3408)	NO_x	5.40	21.02
28STK_001	PTR4 Pretreater Charge (B-7001)	NO_x	12.00	42.05
28STK_001	PTR4 Depent Reboiler (B-7002)	NO_x	13.08	55.45
28STK_003	PTR4 Reformer	NO_x	105.16	326.14

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	Heater (B-7101-4)			
28STK_003	PTR4 Debutanizer Reboiler (B-7201)	NO_x	4.90	17.30
36STK_002e, 36STK_002w, 36STK_002i	CUA Atmospheric Heater B1-A	NO_x	25.29	100.74
36STK_004e, 36STK_004w, 36STK_004i	CUA Atmospheric Heater B1-B	NO_x	25.29	100.74
36STK_006	CUA Vacuum Heater B-2	NO_x	5.70	24.97
36STK_007	CUA Vacuum Heater B-3	NO_x	5.70	23.65
38STK_001	Furf 1 Extract Heater B-1	NO_x	3.40	12.70
38STK_001	Furf 1 Extract Heater B-2	NO_x	(5)	(5)
38STK_002	Furf 1 Extract Heater B2-A	NO_x	2.50	9.37
39STK_001	Furf 2 Extract Heater BA-1	NO_x	6.83	27.47
39STK_001	Furf 2 Extract Heater BA-2	NO_x	(6)	(6)

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39STK_002	Furf 2 Extract Heater B-103	NO_x	1.50	1.31
40STK_001	HDF Lube Oil Heater (10-B-1)	NO_x	0.64	2.80
40STK_002	HDF Paraffin Wax Heater (20-B-1)	NO_x	0.51	2.21
47ENG_225	SIB Engine 225	NO_x	0.51	2.25
47ENG_226	SIB Engine 226	NO_x	0.51	2.25
47ENG_227	SIB Engine 227	NO_x	0.51	2.25
47ENG_228	SIB Engine 228	NO_x	0.51	2.25
47ENG_229	SIB Engine 229	NO_x	0.51	2.25
55STK_001	PP2 COGEN Turbine (24)	SO_3	2.00	4.40
57STK_033	PP3 Boiler No. 33	NO_x	42.78	187.38
57STK_034	PP3 Boiler No. 34	NO_x	42.78	187.38
65STK_001	Cold Box Reactivation	NO_x	0.23	0.89

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	Heater			
27FUG_001	PTR3 Fugitive Area	Cl_2	0.11	0.50
27VNT_001	Regenerator Vent	HCl	0.56	3.05
		HCl (During Scrubber Maintenance)	3.29	-
28FUG_001	PTR4 Fugitive Area	Cl_2	0.10	0.44
28VNT_001	PTR4 Reactor Regeneration Vent	Cl_2	0.40	1.90
		HCl	0.03	0.10
32VNT_002	SRU2/3 No. 2 Vent (Maintenance)	CS_2	0.80	
		COS	7.70	
32VNT_003	SRU2/3 No. 3 Vent (Maintenance)	CS_2	0.80	
		COS	7.70	
32VNT_002 32VNT_003	SRU2/3 No. 2 and No. 3 Vent (Maintenance)	CS_2	-	0.13
		COS	-	1.79

(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
CO - carbon monoxide

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SO_2 - sulfur dioxide
PM - particulate matter, suspended in the atmosphere, including PM_{10} and $PM_{2.5}$
PM_{10} - particulate matter equal to or less than 10 microns in diameter, condensable and noncondensable. Where PM is not listed, it shall be assumed that no PM greater than 10 microns is emitted.
$PM_{2.5}$ - particulate matter equal to or less than 2.5 microns in diameter, condensable and noncondensable. Where PM is not listed, it shall be assumed that no PM greater than 2.5 microns is emitted.
H_2S - hydrogen sulfide
H_2SO_4 - sulfuric acid mist
NH_3 - ammonia
SO_3 - sulfur trioxide
Cl_2 - chlorine
HCl - hydrogen chloride
CS_2 - carbon disulfide
COS - carbonylsulfide

(4) Compliance with annual emission limits (tons per year) is based on a 12 month rolling period.
(5) Emissions are emitted from the two heaters are emitted from the same stack.
(6) Emissions are emitted from the two heaters are emitted from the same stack.

* Emission rates are based on and the facilities are limited by the following maximum operating schedule:

_____Hrs/day _____Days/week _____Weeks/year or 8,760 Hrs/year

*** $PM_{2.5}$ may be up to 100 percent of PM_{10}

Date: December 6, 2011