

## EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

Permit Numbers 5920A and PSD-TX-103M2

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 Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates*	
			lb/hr	TPY**
Unit 38 - Distillate Hydrotreaer				
38-0-0	DHT Fugitives (4)	VOC	3.83	16.77
		H <sub>2</sub> S	0.03	0.14
		NH <sub>3</sub>	0.01	0.04
38-36-251	Reactor Charge Heater	NO <sub>x</sub>	2.67	5.32
		SO <sub>2</sub>	3.24	6.44
		VOC	0.53	1.06
		CO	7.13	14.19
		PM <sub>10</sub>	0.74	1.47
38-36-252	Stripper Reboiler	NO <sub>x</sub>	2.67	11.71
		SO <sub>2</sub>	3.24	14.18
		VOC	0.53	2.34
		CO	7.13	31.22
		PM <sub>10</sub>	0.74	3.23
54-22-21	Cooling Tower (4)	VOC	0.32	1.38
Unit 9 - Crude Unit				
9-36-4	Crude Heater	PM <sub>10</sub>	1.20	5.00
		SO <sub>2</sub>	6.20	8.50
		NO <sub>x</sub>	21.10	73.90
		CO	9.20	40.10
		VOC	0.30	1.40

EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

AIR CONTAMINANTS DATA

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	<u>Emission Rates *</u>	
			lb/hr	TPY**

9-0-0	Fugitives (4)	Benzene	0.20	1.00
		VOC	7.04	30.88
54-22-2	Cooling Tower No. 2	VOC	1.20	5.00

Unit 25.1 Sour Crude Unit

25.1-0-0	Sour Crude Unit Fugitives (4)	VOC	3.37	14.74
		H <sub>2</sub> S	0.001	0.004
25.1-36-1	Crude Charge Heater	NO <sub>x</sub> (8)	93.40	409.09
		PM <sub>10</sub> (8)	2.34	10.23
		VOC (8)	0.16	0.71
		CO	18.68	81.82
		SO <sub>2</sub> (8)	15.25	66.81
54-22-14	Cooling Tower (4)	VOC	3.36	14.72
56-61-16	Expansion HP Flare	NO <sub>x</sub>	0.11	0.49
		CO	0.96	4.20
		SO <sub>2</sub>	0.07	0.33

Unit 25.2 - Distillate Hydrotreater Unit

25.2-0-0	DHT Unit Fugitives (4)	VOC	2.47	10.81
		H <sub>2</sub> S	0.01	0.03
		NH <sub>3</sub>	0.01	0.01

## EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

## AIR CONTAMINANTS DATA

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates *	
			lb/hr	TPY**
25.2-CS	Reactor Charge Heater	NO <sub>x</sub> (8)	10.14	41.53
		PM <sub>10</sub> (8)	0.87	3.60
		VOC (8)	0.07	0.31
		CO	2.17	8.91
		SO <sub>2</sub> (8)	2.07	8.50
	Combo Tower Reboiler	NO <sub>x</sub> (8)	11.39	41.53
		PM <sub>10</sub> (8)	0.98	3.60
		VOC (8)	0.08	0.31
		CO	2.44	8.91
		SO <sub>2</sub> (8)	2.33	8.50
<u>Unit 26.1 Cat Feed Hydrotreater</u>				
26.1-0-0	CFHT Fugitives (4)	VOC	6.87	30.06
		H <sub>2</sub> S	0.04	0.15
		NH <sub>3</sub>	0.01	0.02
26-CS	Charge Heater 1	NO <sub>x</sub> (8)	16.08	54.23
		PM <sub>10</sub> (8)	0.67	2.26
		VOC (8)	0.05	0.16
		CO	5.36	18.08
		SO <sub>2</sub> (8)	4.38	19.17
26-CS	Charge Heater 2	NO <sub>x</sub> (8)	13.40	45.19
		PM <sub>10</sub> (8)	0.67	2.26
		VOC (8)	0.05	0.16
		CO	5.36	18.08
		SO <sub>2</sub> (8)	4.38	19.17
26-CS	Recycle Heater 1	NO <sub>x</sub> (8)	4.20	17.68
		PM <sub>10</sub> (8)	0.59	2.47
		VOC (8)	0.05	0.21
		CO	2.56	10.78
		SO <sub>2</sub> (8)	1.37	6.01

## EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

## AIR CONTAMINANTS DATA

Emission	Source	Air Contaminant	Emission Rates *	
Point No. (1)	Name (2)	Name (3)	lb/hr	TPY**
26-CS	Recycle Heater 2	NO <sub>x</sub> (8)	4.20	17.68
		PM <sub>10</sub> (8)	0.59	2.47
		VOC (8)	0.05	0.21
		CO	2.56	10.78
		SO <sub>2</sub> (8)	1.37	6.01
Unit 26.2 Hydrogen Purification Unit				
26.2-0-0	HPU Fugitives (4)	VOC	2.90	12.70
		H <sub>2</sub> S 0.02	0.07	
Unit 27 - Fluid Catalytic Cracking Unit				
27.1-0-0	FCC Fugitives (4)	VOC	8.27	36.22
		H <sub>2</sub> S	0.01	0.06
		Benzene	0.02	0.09
27.1-36-RE	FCC Regenerator Exhaust	NO <sub>x</sub> (8)	402.0	730.51
		PM <sub>10</sub> (8)	72.98	319.63
		VOC (8)	7.50	32.85
		CO	608.91	1282.49
		SO <sub>2</sub> (8)	833.27	3649.74
	H <sub>2</sub> SO <sub>4</sub>	26.44	115.80	
27.2-0-0	FCC Gas Plant Fugitives (4)	VOC	0.94	4.12
		H <sub>2</sub> S	0.001	0.01
56-61-17	Expansion LP Flare	NO <sub>x</sub>	0.06	0.30
		VOC	0.61	2.70
		CO	0.12	0.50
		SO <sub>2</sub>	21.25	46.50
		R-SH	0.33	0.70

## EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

## AIR CONTAMINANTS DATA

Emission	Source	Air Contaminant	Emission Rates *	
Point No. (1)	Name (2)	Name (3)	lb/hr	TPY**
<u>Unit 28- Sulfur Recovery Complex</u>				
28.1-0-0	ARU/SWS Fugitives (4)	VOC	0.64	2.79
		H <sub>2</sub> S	0.15	0.66
		NH <sub>3</sub>	0.08	0.36
28.1-61-9	DEA Stripper Flare	NO <sub>x</sub>	0.03	0.13
		VOC	0.01	0.01
		CO	0.25	1.10
		SO <sub>2</sub>	0.85	3.74
		H <sub>2</sub> S	0.01	0.01
28.1-61-10	Sour Water Stripper Flare	NO <sub>x</sub>	0.03	0.13
		VOC	0.01	0.01
		CO	0.25	1.09
		SO <sub>2</sub>	0.40	1.76
		H <sub>2</sub> S	0.01	0.01
28.2-0-0	SRU Fugitives (4)	VOC	0.65	2.84
		H <sub>2</sub> S	0.11	0.50
		NH <sub>3</sub> 0.03	0.14	
28.2-36-2	Incinerator Stack	NO <sub>x</sub> (8)	7.45	32.62
		PM <sub>10</sub> (7)(8)	2.50	6.95
		VOC (8)	0.23	1.00
		CO	20.20	88.47
		SO <sub>2</sub> (8)	115.42	505.55
		H <sub>2</sub> S	2.45	10.74
		H <sub>2</sub> SO <sub>4</sub>	0.45	1.95
28-95-300	DEA Tank	VOC	0.01	0.01
28-95-302, 28-95-305, 28-95-316, and 68-95-97	Sour Water Surge Tanks	VOC	0.01	0.02
		H <sub>2</sub> S	0.53	2.32
		NH <sub>3</sub>	0.01	0.01

## EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

## AIR CONTAMINANTS DATA

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	<u>Emission Rates *</u>	
			lb/hr	TPY**
28-95-306	MDEA Tank	VOC	0.01	0.01
<u>Unit 29.1 - Vacuum Unit</u>				
29-61-1	Flare	NO <sub>x</sub>	0.11	0.50
		CO	0.83	3.64
		SO <sub>2</sub>	0.06	0.25
29.1-0-0	Vacuum Fugitives (4)	VOC	1.31	5.72
		H <sub>2</sub> S	0.02	0.07
29.1-36-001	Vacuum Unit Heater	NO <sub>x</sub>	22.65	79.37
		PM <sub>10</sub>	1.13	3.97
		VOC	0.21	0.74
		CO	15.10	52.92
		SO <sub>2</sub>	7.65	26.79
54-22-20	Cooling Tower (4)	VOC	1.60	6.99
<u>Unit 29.2 - Delayed Coker</u>				
29.2-0-0	Coker Fugitives (4)	VOC	2.98	13.06
		H <sub>2</sub> S	0.04	0.17
29.2-0-1	Coke Handling Fugitives (4)	PM	3.73	3.17
		PM <sub>10</sub>	1.77	1.52
29.2-36-CS	Coker Heater A	NO <sub>x</sub>	14.77	51.74
		TSP/PM <sub>10</sub>	0.74	2.59
		VOC	0.04	0.14
		CO	9.84	34.49
		SO <sub>2</sub>	5.85	20.49
29.2-36-CS	Coker Heater B	NO <sub>x</sub>	14.77	51.74
		TSP/PM <sub>10</sub>	0.74	2.59

# EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

## AIR CONTAMINANTS DATA

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates *	
			lb/hr	TPY**
		VOC	0.04	0.14
		CO	9.84	34.49
		SO <sub>2</sub>	5.85	20.49

### Storage Tanks

68-95-61	Storage Tank	VOC	1.35	3.59
68-95-62	Storage Tank	VOC	1.35	3.59
68-95-98	Cat. Gasoline Storage Tank	VOC	1.30	7.50
68-95-99A	Sweet Gas Oil Storage Tank	VOC	1.69	7.40
68-95-99B	Sweet Gas Oil Storage Tank	VOC	1.69	7.40
68-95-99C	Sour Gas Oil Storage Tank	VOC	1.70	7.43
68-95-213	Alkylate Storage Tank	VOC	3.36	10.46
68-95-418	Vacuum Resid Storage Tank	VOC	4.31	18.90
68-95-419	Sweet Gas Oil Storage Tank	VOC	3.20	14.03
68-95-246	Storage Tank	VOC	0.16	0.53
68-95-228	Gasoline Storage Tank	VOC	1.16	2.43

### Miscellaneous Fugitive Areas

3-0-0	Unit 3 Fugitives (4)	VOC	2.91	12.74
4-0-0	Unit 4 Fugitives (4)	VOC	2.55	11.19
5-0-0	Unit 5 Fugitives (4)	VOC	1.45	6.36

## EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

## AIR CONTAMINANTS DATA

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	<u>Emission Rates *</u>	
			lb/hr	TPY**
8-0-0	Unit 8 Fugitives (4)	VOC	0.85	3.73
15-0-0	Unit 15 Fugitives (4)	VOC	3.55	15.56
20-0-0	Unit 20 Fugitives (4)	VOC	2.28	9.98
68.1-0-0	Refinery Tank Farm Fugitives (4)	VOC	9.46	41.46
68.2-0-2	Refinery Tank Farm Fugitives (4)	VOC	1.55	6.75

EMISSION CAPS effective July 1, 2006 (5)

NO <sub>x</sub>	1775.1	
VOC (initial)(6)		850.20
VOC (final)(6)		776.38
CO	316.1	
PM <sub>10</sub>		755.7

- (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) PM - particulate matter, suspended in the atmosphere, including PM<sub>10</sub>  
PM<sub>10</sub> - particulate matter, equal to or less than 10 microns in diameter. Where PM is not listed, it shall be assumed that no particulate matter greater than 10 microns is emitted.



EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

SO<sub>2</sub> - sulfur dioxide  
NO<sub>x</sub> - total oxides of nitrogen  
CO - carbon monoxide  
VOC - volatile organic compounds as defined in Title 30 Texas Administrative Code § 101.1  
H<sub>2</sub>S - hydrogen sulfide  
NH<sub>3</sub> - ammonia  
H<sub>2</sub>SO<sub>4</sub> - sulfuric acid mist  
R-SH - mercaptan  
TSP - total suspended particulate

- (4) Emission rate is an estimate and compliance is demonstrated by meeting the requirements of the applicable special conditions and permit application representations.
- (5) The sum of all normal operational emissions from all emission points in Table 1 shall not exceed a given cap on a rolling 12-month average. The caps will become effective July 1, 2006.
- (6) The VOC final emission cap will be applied after December 31, 2006.
- (7) Test method shall be Method 201/201A, excluding sulfates.
- (8) Emissions are covered under PSD-TX-103M2.

\* Emission rates are based on a continuous operating schedule.

\*\* Compliance with annual emission limits is based on a rolling 12-month period.

Dated July 1, 2005