

## EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

Permit Numbers 19566, PSD-TX-768M1, and PSD-TX-932

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**
<u>Sulfur Recovery Unit</u>				
32STK_001	SRU 2/3 Thermal Oxidizer	CO	28.90	126.60
		H <sub>2</sub> S	0.71	2.96
		NO <sub>x</sub>	13.50	47.30
		PM <sub>10</sub>	0.90	3.15
		SO <sub>2</sub>	128.00	403.52
		VOC	0.70	2.28
32VNT_002	SRU 2/3 No. 2 Vent (5)	CO	36.80	
		COS	7.70	
		CS <sub>2</sub>	0.80	
		H <sub>2</sub> S	1.05	
		PM <sub>10</sub>	0.10	
		SO <sub>2</sub>	0.10	
32VNT_003	SRU 2/3 No. 3 Vent (5)	CO	36.80	
		COS	7.70	
		CS <sub>2</sub>	0.80	
		H <sub>2</sub> S	1.05	
		PM <sub>10</sub>	0.10	
		SO <sub>2</sub>	0.10	
32VNT_002 and 32VNT_003	SRU 2/3 No. 2 Vent and SRU 2/3 No. 3 Vent (5)	CO	10.68	
		COS	1.79	
		CS <sub>2</sub>	0.13	
		H <sub>2</sub> S	0.38	
		PM <sub>10</sub>	0.02	
		SO <sub>2</sub>	0.02	

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AIR CONTAMINANTS DATA				
Emission	Source	Air Contaminant	Emission Rates *	
<u>Point No. (1)</u>	<u>Name (2)</u>	<u>Name (3)</u>	<u>lb/hr</u>	<u>TPY**</u>
30VNT_003	SRU 1 Sulfur Pit (5)	H <sub>2</sub> S	0.04	0.01
		SO <sub>2</sub>	1.67	0.28
32VNT_005	SRU 2/3 Sulfur Truck Loading (5)	H <sub>2</sub> S	0.06	0.26
		SO <sub>2</sub>	1.29	0.11
32FUG_001	SRU 2/3 Fugitives (4)	H <sub>2</sub> S	0.25	1.10
		NH <sub>3</sub>	0.01	0.04
		SO <sub>2</sub>	0.05	0.21
		VOC	1.17	5.12
30FUG_001	SRU 1 Fugitives (4)	H <sub>2</sub> S	1.71	7.51
		SO <sub>2</sub>	1.79	7.82
<u>Crude Unit B</u>				
05STK_001	Crude B Atm. Heater H-3101 Stack	CO	58.16	86.15
		NO <sub>x</sub>	94.32	344.27
		PM <sub>10</sub>	4.72	17.50
		SO <sub>2</sub>	22.01	40.16
		VOC	1.10	4.02
05STK_002	Crude B Vacuum Heater H-3102 Stack	CO	11.01	28.20
		NO <sub>x</sub>	17.90	62.50
		PM <sub>10</sub>	0.80	2.70
		SO <sub>2</sub>	4.00	13.90
		VOC	0.40	1.50
05STK_004	Crude B Heater H-2001 Stack	CO	8.80	6.60
		NO <sub>x</sub>	14.40	50.60
		PM <sub>10</sub>	0.60	2.20
		SO <sub>2</sub>	3.20	11.20
		VOC	0.40	1.20

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			lb/hr	TPY**
05FUG_001	Crude B Fugitives (4)	H <sub>2</sub> S	0.01	0.01
		VOC	4.94	21.50
<u>Hydrocracker</u>				
20STK_001	HDC First Stage West Furnace H-3301 Stack	CO	0.11	0.36
		NO <sub>x</sub>	1.36	4.38
		PM <sub>10</sub>	0.18	0.59
		SO <sub>2</sub>	0.99	1.53
		VOC	0.09	0.30
20STK_002	HDC First Stage East Furnace H-3302 Stack	CO	0.40	1.60
		NO <sub>x</sub>	3.00	12.10
		PM <sub>10</sub>	0.13	0.50
		SO <sub>2</sub>	0.73	1.41
		VOC	0.08	0.30
20STK_003	HDC Second Stage Furnace H-3303 Stack	CO	0.40	1.60
		NO <sub>x</sub>	3.00	12.10
		PM <sub>10</sub>	0.13	0.50
		SO <sub>2</sub>	0.73	1.41
		VOC	0.08	0.30
20STK_004	HDC Stabilizer Reboiler Heater H-3304 Stack	CO	4.61	19.56
		NO <sub>x</sub>	11.76	49.93
		PM <sub>10</sub>	1.18	4.99
		SO <sub>2</sub>	5.68	11.65
		VOC	0.55	2.33
20STK_005	HDC Splitter Reboiler H-3305 Stack	CO	2.65	2.94
		NO <sub>x</sub>	8.02	19.15
		PM <sub>10</sub>	0.71	2.05
		SO <sub>2</sub>	3.24	4.58
		VOC	0.30	0.86
20CTL_005	Cooling Tower No. 5	VOC	1.51	6.62

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Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates *	
			lb/hr	TPY**
20FUG_001	HDC Fugitives (4)	H <sub>2</sub> S	0.01	0.05
		NH <sub>3</sub>	0.01	0.02
		VOC	1.78	7.81
<u>Pretreater No. 4</u>				
28STK_001	PTR 4 Rx Charge Heater B-7001 (Common Stack with B-7002)	CO	7.40	25.93
		NO <sub>x</sub>	12.00	42.05
		PM <sub>10</sub>	0.50	1.75
		SO <sub>2</sub>	2.80	4.91
		VOC	0.30	1.02
28STK_001	PTR 4 Depen. Reboiler Heater B-7002 (Common Stack with B-7001)	CO	8.07	34.36
		NO <sub>x</sub>	13.08	55.45
		PM <sub>10</sub>	0.58	2.47
		SO <sub>2</sub>	2.98	6.45
		VOC	0.30	1.39
<u>Reformer No. 4</u>				
28STK_003	PTR 4 Reformer Heater B-7101-4 (Common Stack with B-7201)	CO	13.84	42.91
		NO <sub>x</sub>	105.16	326.14
		PM <sub>10</sub>	8.76	27.16
		SO <sub>2</sub>	23.35	36.12
		VOC	1.25	4.07
28STK_003	PTR 4 Debut Reboiler B-7201 (Common Stack with B-7101-4)	CO	0.70	2.30
		NO <sub>x</sub>	4.90	17.30
		PM <sub>10</sub>	0.20	0.80
		SO <sub>2</sub>	1.10	3.80
		VOC	0.10	0.40
28VNT_001	PTR 4 Reactor Regeneration Vent	Cl <sub>2</sub>	0.40	1.90
		CO	1.49	6.52
		HCl	0.03	0.10
		NO <sub>x</sub>	2.08	9.11

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Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates *	
			lb/hr	TPY**
		PM <sub>10</sub>	0.01	0.05
		SO <sub>2</sub>	0.10	0.40
28FUG_001	PTR 4 Fugitives (4) (includes Pretreater)	Cl <sub>2</sub>	0.10	0.44
		VOC	14.04	61.51
<u>Coker</u>				
04STK_004	Coker Far West Furnace	CO	9.27	26.64
		NO <sub>x</sub>	13.50	38.79
		PM <sub>10</sub>	0.84	2.42
		SO <sub>2</sub>	3.33	9.57
		VOC	0.61	1.75
04FUG_001	Coker Fugitives (4)	VOC	4.62	20.34
<u>Amine Regeneration Unit</u>				
18FUG_001	DEA 3 Fugitives (4)	H <sub>2</sub> S	0.17	0.75
		NH <sub>3</sub>	0.01	0.01
		VOC	0.17	0.76
18SMP_4118	Spent Amine Sump 4118	VOC	0.01	0.01
<u>Sour Water Stripper Unit</u>				
29FUG_001	SWS Fugitives (4)	H <sub>2</sub> S	0.01	0.01
		NH <sub>3</sub>	0.01	0.01
		VOC	0.05	0.23
<u>Storage Tanks</u>				
49TFX_0721	OMCC 1 Fixed-Roof Tank 721	VOC	7.16	12.03

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Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates *	
			lb/hr	TPY**
49TIF_0782	OMCC 1 Int. Floating Roof Tank 782	VOC	2.68	10.61
48TEF_1150	Ethyl Ext. Floating Roof Tank 1150	VOC	4.09	15.14
48TEF_1151	Ethyl Ext. Floating Roof Tank 1151	VOC	4.09	15.11
48TEF_1158	Ethyl Ext. Floating Roof Tank 1158	VOC	2.42	7.86
48TEF_1165	Ethyl Ext. Floating Roof Tank 1165	VOC	2.20	9.16
48TEF_1212	Ethyl Ext. Floating Roof Tank 1212	VOC	2.52	8.56
48TEF_1213	Ethyl Ext. Floating Roof Tank 1213	VOC	2.44	8.24
49TEF_1215	OMCC1 Ext. Floating Roof Tank 1215	VOC	3.01	12.94
48TEF_1251	Ethyl Ext. Floating Roof Tank 1251	VOC	2.67	8.30
48TEF_1300	Lube Plant Ext. Floating Roof Tank 1300	VOC	2.67	8.48
49TEF_1314	OMCC 1 Ext. Floating Roof Tank 1314	VOC	2.20	9.11
49TEF_1320	OMCC 1 Ext. Floating Roof Tank 1320	VOC	2.93	9.38
48TEF_1324	Ethyl Ext. Floating Roof	VOC	2.86	10.78

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Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	<u>Emission Rates *</u>	
			lb/hr	TPY**
	Tank 1324			
48TEF_1325	Ethyl Ext. Floating Roof Tank 1325	VOC	1.76	7.37
48TEF_1329	Ethyl Ext. Floating Roof Tank 1329	VOC	3.46	9.73
19TEF_1323	Dualayer Ext. Floating Roof Tank 1323	VOC	0.46	1.59
19TEF_1332	Dualayer Ext. Floating Roof Tank 1332	VOC	0.50	1.72
48TEF_1334	Ethyl Ext. Floating Roof Tank 1334	VOC	2.44	7.73
49TEF_1335	OMCC1 Ext. Floating Roof Tank 1335	VOC	2.37	9.07
48TEF_1338	Ethyl Ext. Floating Roof Tank 1338	VOC	2.43	7.73
48TEF_1350	Ethyl Ext. Floating Roof Tank 1350	VOC	2.50	7.65
48TEF_1361	Ethyl Ext. Floating Roof Tank 1361	VOC	1.09	4.78
48TEF_1362	Ethyl Ext. Floating Roof Tank 1362	VOC	3.45	13.93
48TEF_1389	Ethyl Ext. Floating Roof Tank 1389	VOC	3.24	11.72

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Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates *	
			lb/hr	TPY**
48TEF_1390	Ethyl Ext. Floating Roof Tank 1390	VOC	3.14	11.28
50TEF_2119	OMCC 2 Ext. Floating Roof Tank 2119	VOC	4.54	6.91
50TEF_2209	OMCC 2 Ext. Floating Roof Tank 2209	VOC	3.60	5.49
50TEF_2210	OMCC 2 Ext. Floating Roof Tank 2210	VOC	3.63	6.52
50TEF_2212	OMCC 2 Ext. Floating Roof Tank 2212	VOC	3.63	5.61
50TEF_2213	OMCC 2 Ext. Floating Roof Tank 2213	VOC	3.60	5.94
50TEF_2221	OMCC 2 Ext. Floating Roof Tank 2221	VOC	2.20	8.61
50TEF_2223	OMCC 2 Ext. Floating Roof Tank 2223	VOC	4.88	7.97
50TEF_2225	OMCC 2 Ext. Floating Roof Tank 2225	VOC	3.17	5.00
49TEF_1377	OMCC 1 Ext. Floating Roof Tank 1377	VOC	1.17	3.71
49TEF_1378	OMCC 1 Ext. Floating Roof Tank 1378	VOC	1.15	3.63
18TFX_4117	Lean Amine Tank	VOC	0.07	0.04



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## AIR CONTAMINANTS DATA

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates *	
			lb/hr	TPY**
<u>Petroleum Coke Handling Facility</u>				
04FUG002	Coke Pit	PM <sub>10</sub>	0.22	0.18
		PM	0.42	0.22
04FUG003	Stockpile	PM <sub>10</sub>	1.11	0.44
		PM	2.39	1.08
04FUG004	Conveyor System 1	PM <sub>10</sub>	0.86	0.30
		PM	1.71	0.15
04FUG005	Conveyor System 2	PM <sub>10</sub>	0.94	0.08
		PM	1.98	0.17
<u>Dualayer Unit</u>				
19CTL_025	Dualayer Cooling Tower No. 25	VOC	0.11	0.50
19FUG_001	Dualayer Fugitives (4)	VOC	7.09	31.06
<u>Naphtha Splitter Unit</u>				
66FUG_001	Naphtha Splitter Unit Fugitives (4)	VOC	1.66	7.26
49FUG002	Low Sulfur Gasoline Project - Interconnecting Piping Fugitives (4)	VOC	1.60	7.03
<u>Cogeneration Units</u>				
61STK_001	COGEN Turbine 1 GE PG7241FA Turbine w/ 654 MMBtu/hr Duct Burner	NO <sub>x</sub>	66.32	188.17
		CO***	139.60	372.48
		VOC	12.76	51.98
		SO <sub>2</sub>	47.95	74.07

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## AIR CONTAMINANTS DATA

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates *	
			lb/hr	TPY**
		PM <sub>10</sub> ***	24.54	106.13
		NH <sub>3</sub>	31.88	97.36
		H <sub>2</sub> SO <sub>4</sub>	3.67	5.67
61STK_002	COGEN Turbine 2	NO <sub>x</sub>	66.32	188.17
	GE PG7241FA Turbine w/ 654 MMBtu/hr Duct Burner	CO***	139.60	372.48
		VOC	12.76	51.98
		SO <sub>2</sub>	47.95	74.07
		PM <sub>10</sub> ***	24.54	106.13
		NH <sub>3</sub>	31.88	97.36
		H <sub>2</sub> SO <sub>4</sub>	3.67	5.67
61STK_003	COGEN Turbine 3	NO <sub>x</sub>	66.32	188.17
	GE PG7241FA Turbine w/ 654 MMBtu/hr Duct Burner	CO***	139.60	372.48
		VOC	12.76	51.98
		SO <sub>2</sub>	47.95	74.07
		PM <sub>10</sub> ***	24.54	106.13
		NH <sub>3</sub>	31.88	97.36
		H <sub>2</sub> SO <sub>4</sub>	3.67	5.67
61VNT_001	CTG No. 1 Lube Oil Vent	VOC	0.04	0.19
61VNT_002	CTG No. 2 Lube Oil Vent	VOC	0.04	0.19
61VNT_003	CTG No. 3 Lube Oil Vent	VOC	0.04	0.19
61VNT_004	STG Lube Oil Vent	VOC	0.01	0.02
61CTL_031	Cooling Tower	PM <sub>10</sub>	0.27	1.18
61FUG_001	Piping Fugitives (4)	VOC	2.62	11.48
		NH <sub>3</sub>	0.13	0.56

(1) Emission point identification - either specific equipment designation or emission point number from a plot plan.

(2) Specific point source names. For fugitive sources use area name or fugitive source name.

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Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates *	
			lb/hr	TPY**
(3)	CO	- carbon monoxide		
	COS	- carbonyl sulfide		
	CS <sub>2</sub>	- carbon disulfide		
	Cl <sub>2</sub>	- chlorine		
	HCl	- hydrogen chloride		
	H <sub>2</sub> S	- hydrogen sulfide		
	H <sub>2</sub> SO <sub>4</sub>	- sulfuric acid		
	NH <sub>3</sub>	- ammonia		
	NO <sub>x</sub>	- total oxides of nitrogen		
	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 PM greater than 10 microns is emitted		
	SO <sub>2</sub>	- sulfur dioxide		
	VOC	- volatile organic compounds as defined in Title 30 Texas Administrative Code § 101.1		
(4)	Fugitive emissions are an estimate only and should not be considered as a maximum allowable emission rate.			
(5)	The annual emission rate in tons per year is based on operating 336 hours per year (rolling annual basis) with the stack burner/thermal oxidizer down.			

Permits by  
Rule (PBR)  
and  
Emissions  
Consolidated  
by Reference

Permit  
Numbers  
19566, PSD-  
TX-768M1,  
and PSD-TX-  
932

Note: The emissions in this table were originally authorized under one or more Standard Exemptions (SEs), Permits by Rule (PBRs), or Standard Permits (SPs) which have been Consolidated by Reference into this permit. The rates for each emission point number (EPN) and contaminant are included in the emission rates appearing previously in this document for the EPN. The original SEs, PBRs, and SPs continue in effect. These emissions have not been evaluated for effects.

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Permits by Rule (PBR) and Emissions Consolidated by Reference  
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EPN No.	Registration No(s).	PBR(s) Claimed	Air Contaminant Name (3)	Emission Rates *	TPY**
				lb/hr	
32STK_001		106.262	H <sub>2</sub> S	0.71	2.96
32VNT_005		106.262	H <sub>2</sub> S	0.06	0.26
32FUG_001	34760, 34779, 43675, 44038, 47309, 47608, 52288, 53561, 70003, 74997, and 75572	SE 118, 106.261, 106.262, 106.373, and 106.473	H <sub>2</sub> S	0.0002	0.014
			SO <sub>2</sub>	0.02	0.107
			VOC	0.243	1.052
30FUG_001	53561	SE 118, 106.261, 106.262, and 106.473	VOC	0.55	2.39
05FUG_001	46743, 47175, 47608, 50858, 54487, 54768, 71024, 71740, 74615	SE 106, 106.261, 106.262, and 106.472	H <sub>2</sub> S	0.0027	0.005
			VOC	2.50	10.93

Permits by Rule (PBR) and Emissions Consolidated by Reference  
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EPN No.	Registration No(s).	PBR(s) Claimed	Air Contaminant Name (3)	Emission Rates *	TPY**
				lb/hr	
20FUG_001	30669, 44099, 47608, 50858, 53040, 54768, 55654, 70983, 71740, and 75572	SE 84, 106, 118, 106.261, and 106.262	H <sub>2</sub> S	0.01	0.05
			NH <sub>3</sub>	0.005	0.02
			VOC	0.94	4.09
28STK_001		106.261	CO	Operations change with net emissions reduction.	Operations change with net emissions reduction.
			NO <sub>x</sub>		
			PM <sub>10</sub>		
			SO <sub>2</sub>		
			VOC		
28VNT_001		SE 106, 106.261	CO	0.53	2.32
			NO <sub>x</sub>	2.08	9.11
			PM <sub>10</sub>	0.002	0.01

Permits by Rule (PBR) and Emissions Consolidated by Reference  
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EPN No.	Registration No(s).	PBR(s) Claimed	Air Contaminant Name (3)	Emission Rates *	
				lb/hr	TPY**
04STK_004		106.261	VOC	0.008	0.034
18FUG_001	26280, 35777, 42951, 44048	SE 118, 106.261, 106.261	H <sub>2</sub> S	0.009	0.038
			NH <sub>3</sub>	0.000009	0.00004
			VOC	0.05	0.05
18SMP_4118			VOC	0.0004	0.0015
29FUG_001	71740	106.261	VOC	0.052	0.23
49TEF_1377		106.478	VOC	Product change with no emissions increase	Product change with no emissions increase
18TFX_4117			VOC	0.06	0.00
4FUG_002		SE 116, 106.261	PM <sub>10</sub>	0.02	0.07
4FUG_003		SE 116 106.261	PM <sub>10</sub>	0.04	0.18
			PM	0.12	0.54
4FUG_004	75572	SE 116, 106.261	PM <sub>10</sub>	0.05	0.23
19FUG_001	44099, 54768, 71740, 75572	SE 51 106.261, 106.472	Inorganic	0.30	1.32
			VOC	0.16	0.72
66FUG_001	71740, 75572	106.261	VOC	0.02	0.11
50TEF_2223		106.261	VOC	3.06	0.00



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

Hrs/day 24 Days/week 7 Weeks/year 52

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

- \*\*\* Emissions regulated under PSD-TX-932 permit authorization.

Dated January 9, 2009