

# EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

Permit Numbers 18999 and PSDTX755

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	Source	Air Contaminant	<u>Emission Rates *</u>	
<u>Point No. (1)</u>	<u>Name (2)</u>	<u>Name (3)</u>		
<u>lb/hr</u>	<u>TPY**</u>			
4026-U	Waste Heat Boiler /SCR1 Normal Operations	NO <sub>x</sub>	36.70	158.53
		CO	14.93	64.89
		VOC (5)	10.90	47.70
		SO <sub>2</sub>	13.33	57.71
		PM (12)	9.02	39.04
		PM <sub>10</sub>	5.61	24.56
		PM <sub>2.5</sub>	4.21	18.42
		NH <sub>3</sub>	17.64	54.07
		H <sub>2</sub> S	0.01	0.01
		Ethylene	0.88	3.90
		Propylene	0.64	2.79
4026-U	Waste Heat Boiler /SCR1 Maintenance, Startup, and Shutdown (MSS) Activities	NO <sub>x</sub>	5.78	1.30
		CO	1.13	0.25
		VOC (5)	0.07	0.02
		SO <sub>2</sub>	0.28	0.06
		PM <sub>10</sub>	1.93	0.43
		PM <sub>2.5</sub>	1.45	0.32
		NH <sub>3</sub>	13.07	0.31
		H <sub>2</sub> S	0.01	0.01
		Ethylene	0.01	0.01
		Propylene	0.01	0.01

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4000-B	Charge Gas Heater /SCR2	NO <sub>x</sub>	1.63	7.13
		CO	16.53	72.39
		VOC (5)	2.60	11.40
		SO <sub>2</sub>	3.72	16.31
		PM (12)	1.86	8.16
		PM <sub>10</sub>	1.40	6.12
		PM <sub>2.5</sub>	1.05	4.59
		NH <sub>3</sub>	2.01	8.80
		H <sub>2</sub> S	0.01	0.01
		Ethylene	1.83	8.03
		Propylene	0.46	2.01
1-103B	Regenerator Heater	NO <sub>x</sub>	0.25	0.33
		CO	0.22	0.29
		VOC (5)	0.01	0.01
		SO <sub>2</sub>	0.04	0.05
		PM <sub>10</sub>	0.02	0.02
		Ethylene	0.01	0.01
		Propylene	0.01	0.01
2004-1	Process Water CPI North CAS	VOC (6)	0.01	0.01
2004-2	Process Water CPI South CAS	VOC (6)	1.55	3.27
2205-1	Process Water Tanks	VOC	2.89	0.06
		Benzene	0.22	0.01
2205-2	Process Water Tanks	VOC	1.45	0.01
		Benzene	0.11	0.01
2300-1	Process Water Tanks	VOC	5.15	0.14
		Benzene	0.39	0.01
2300-2	Outfall Water Tanks	VOC	1.50	0.05
		Benzene	0.14	0.01
M-222	Storage Tank	VOC	0.31	0.26
M-223	Storage Tank	VOC	0.31	0.26

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1-105A	Main Flare Normal Operations	NO <sub>x</sub>	170.78	0.79
		CO	883.21	5.69
		VOC (11)	807.65	7.22
		SO <sub>2</sub>	46.36	0.01
		H <sub>2</sub> S	0.49	0.01
		Ethylene	83.78	0.79
		Propylene	418.90	3.97
		Butene	50.27	0.48
		Butadiene	33.51	0.08
		Benzene	28.49	0.08
1-105A	Main Flare MSS Activities	NO <sub>x</sub>	87.70	11.50
		CO	447.00	58.60
		VOC (5)	670.00	44.88
		SO <sub>2</sub>	24.00	2.77
		H <sub>2</sub> S	0.27	0.02
		Ethylene	62.22	3.99
		Propylene	488.00	19.94
		Butene	48.80	6.38
		Butadiene	40.26	0.80
		Benzene	30.50	0.80
TO-STK	RTO Stack (9) Normal Operations	NO <sub>x</sub>	0.10	0.28
		CO	0.08	0.23
		VOC	0.13	0.48
		SO <sub>2</sub>	0.01	0.05
		PM <sub>10</sub>	0.15	0.58
			0.94	
			0.08	
TO-STK	RTO Stack (9) MSS Activities	NO <sub>x</sub>	0.10	0.01
		CO	0.08	0.01
		VOC	5.21	0.01
		SO <sub>2</sub>	0.01	0.01
		PM <sub>10</sub>	0.01	0.01
1-104BD	Auxiliary Boiler (227.5 MMBtu/hr,	NO <sub>x</sub> (7) (PSD)	30.24	105.96
		CO (PSD)	20.74	72.67
		VOC (5)	1.92	6.71

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M-1002	LHV)	SO <sub>2</sub>	1.26	4.42
		PM <sub>10</sub> (PSD)	2.10	7.36
		Ethylene	1.35	4.73
		Propylene	0.24	0.83
		VOC	0.54	1.97
T-136A	Storage Tank	VOC	1.89	0.08
T-136B	Storage Tank	VOC	1.21	0.04
F-1-101U	Cooling Tower (4)	VOC (11)	1.97	8.59
		PM <sub>10</sub>	0.01	0.01
		PM <sub>2.5</sub>	0.01	0.01
		Ethylene	0.49	0.86
		Propylene	1.95	4.30
		Butene	0.01	0.01
		Butadiene	0.01	0.01
		Benzene	0.01	0.01
F-2401-UL	Cooling Tower (4)	VOC (11)	0.60	2.61
		PM <sub>10</sub>	0.01	0.01
		PM <sub>2.5</sub>	0.01	0.01
		Ethylene	0.06	0.24
		Propylene	0.30	1.31
		Butene	0.01	0.01
		Butadiene	0.01	0.01
		Benzene	0.01	0.01
F-1-L4	Loading Flare K/O	VOC	0.57	0.01
LD-SLUDGE	Loading CPI Sludge	VOC	0.24	0.01
LD-TAR	Loading Tar	VOC	2.63	0.08
ENG-R	RTO Compressor	NO <sub>x</sub>	2.43	10.62
		CO	0.24	2.12
		VOC	0.08	0.34
		SO <sub>2</sub>	0.49	0.99
		PM <sub>10</sub>	0.23	1.06
DC-TANK	Fuel Tank	VOC	0.06	0.01

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TO-TANK	Fuel Tank	VOC	0.06	0.01
185-F	Fuel Tank	VOC	0.02	0.01
187-F	Fuel Tank	VOC	0.02	0.01
ANA-VENT	Process Analyzers Vent (8)	NO <sub>x</sub>	0.01	0.01
		CO	0.01	0.01
		VOC (5)	0.01	0.05
		Propylene	0.01	0.05
V-1-L4	Propylene Truck Loading	VOC	0.24	0.40
V-2-L4	Propylene Rail Loading	VOC	0.12	0.03
267-F	Storage Tank	VOC	0.02	0.01
M-102A	Storage Tank	VOC	0.19	0.01
M-102B	Storage Tank	VOC	0.26	0.01
137-F	Storage Tank	VOC	0.01	0.01
179-F/797F	Fuel Tank	VOC	0.21	0.01
BLOW-VENT	Blow Down Vent (1)	VOC	4.94	0.98
F-1-GB	Stormwater System	VOC	5.43	1.25
MAINT- METER	Meter Calibrations	VOC	0.01	0.01
PLANT	Plant Fugitives (4)	VOC (11)	11.47	48.90
		Ethylene	0.57	2.44
		Propylene	5.73	24.45
		Butene	0.11	0.49
		Butadiene	0.01	0.05
		Benzene	0.01	0.05

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A-206	Regenerator Scrubber	VOC	0.67	0.01
TOTES	Containers	VOC	1.51	0.15
WTC	Containers	Caustic	1.39	0.14
LD-CAT	Catalyst Handling	PM <sub>10</sub>	11.27	0.71
		PM <sub>2.5</sub>	8.45	0.53

## AIR CONTAMINANTS DATA

<u>Emission Point No. (1)</u> <u>TPY**</u>	<u>Source Name (2)</u>	<u>Air Contaminant Name (3)</u>	<u>Emission Rates *</u> lb/hr	
PLANT NH <sub>3</sub>	Ammonia Handling	NH <sub>3</sub>	0.17	0.56
DEGR	Cold Solvent Cleaner	VOC	0.01	0.01
4030-EJ	Steam Eductor Maintenance, Startup, and Shutdown (MSS)	NO <sub>x</sub>	2.00	0.01
		CO	191.00	1.15
		SO <sub>2</sub>	0.10	0.01
		VOC (11)	260.00	1.56
		Ethylene	13.00	0.08
		Propylene	39.00	0.23
		Butene	2.60	0.02
		Butadiene	0.13	0.01
		Benzene	0.26	0.01
PLANT MSS	Process System MSS	VOC (11)	43.84	8.00
		Ethylene	2.83	0.52
		Propylene	18.84	3.44
		Butene	12.50	0.05
		Butadiene	0.50	0.01
		Benzene	1.00	0.01
PLANT MSS	Transfer 0.01	System MSS	VOC	0.19
PLANT MSS	Storage System MSS	VOC	0.11	0.47

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PLANT MSS	Tank M-1002 MSS	VOC	294.39	0.69
PLANT MSS	Tank M-223 MSS	VOC	31.25	0.04
PLANT MSS	Tank M-224 MSS	VOC	31.25	0.04
PLANT MSS	Blasting	PM (12)	0.12	0.02
		PM <sub>10</sub>	0.03	0.01
		PM <sub>2.5</sub>	0.01	0.01

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Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	lb/hr	Emission Rates *
				TPY**
PLANT MSS	Painting	VOC	13.01	1.59
		PM	0.25	0.06
		PM <sub>2.5</sub>	0.25	0.06
4061-JT	Gas Turbine 4061 MSS	NO <sub>x</sub>	65.09	5.47
		CO	34.20	2.87
		SO <sub>2</sub>	0.68	0.06
		PM (12)	1.32	0.11
		PM <sub>10</sub>	0.94	0.08
		PM <sub>2.5</sub>	0.57	0.05
		VOC	0.42	0.04
4062-JT	Gas Turbine 4062 MSS	NO <sub>x</sub>	65.09	5.47
		CO	34.20	2.87
		SO <sub>2</sub>	0.68	0.06
		PM (12)	1.32	0.11
		PM <sub>10</sub>	0.94	0.08
		PM <sub>2.5</sub>	0.57	0.05
		VOC	0.42	0.04
4063-JT	Gas Turbine 4063 MSS	NO <sub>x</sub>	65.09	5.47
		CO	34.20	2.87
		SO <sub>2</sub>	0.68	0.06
		PM (12)	1.32	0.11

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		PM <sub>10</sub>	0.94	0.08
		PM <sub>2.5</sub>	0.57	0.05
		VOC	0.42	0.04
4064-JT	Gas Turbine 4064 MSS	NO <sub>x</sub>	65.09	5.47
		CO	34.20	2.87
		SO <sub>2</sub>	0.68	0.06
		PM (12)	1.32	0.11
		PM <sub>10</sub>	0.94	0.08
		PM <sub>2.5</sub>	0.57	0.05
		VOC	0.42	0.04

- (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) 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
- SO<sub>2</sub> - sulfur dioxide
- 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
- PM<sub>2.5</sub> - particulate matter equal to or less than 2.5 microns in diameter
- NH<sub>3</sub> - ammonia
- H<sub>2</sub>S - hydrogen sulfide
- (4) Emission rate is an estimate and is enforceable through compliance with the applicable special condition(s) and permit application representations.
- (5) The VOC includes HRVOC chemicals; ethylene and propylene.
- (6) Emissions vent to carbon canister when RTO is not in operation.
- (7) The NO<sub>x</sub> emission rate is based on the boiler firing plant fuel gas containing hydrogen.
- (8) Emissions for analyzer vents AT9056, AT9057, AT9058, AT9059, AT9090, and AT9095 are included in EPN ANA-VENT.
- (9) The following vents are routed to the RTO when the RTO is in operation: 2004-1 and 2004-2.
- (10) The EPN BLOW-VENT (Facility Identification Nos 102C, 116J, 117J, 157F, and 210F) emissions represent normal operation values. Startup, shutdown, and maintenance emissions are not authorized from this EPN.
- (11) The VOC includes HRVOC chemicals; ethylene, propylene, butene, and butadiene.
- (12) The PM includes PM<sub>10</sub> and PM<sub>2.5</sub>

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

8,760 Hrs/year.



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

Dated May 3, 2010