

## EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

Permit Numbers 19637 and PSD-TX-767M2

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. (EPN) (1)	Source Name (2)	Air Contaminant Name (3)	<u>Emission Rates *</u>	
			lb/hr (4)	TPY (5)
Case I: Turbine and Duct Burner Firing Simultaneously				
CG-1	18 MW (ISO) Westinghouse Model 191 Gas Turbine with 183 MMBtu/hr Fired Duct Burner	NO <sub>x</sub>	41.4	181
		CO	38.0	166
		VOC	3.7	16
		PM	7.5	24
		SO <sub>2</sub>	4.6	20
CG-2	18 MW (ISO) Westinghouse Model 191 Gas Turbine with 183 MMBtu/hr Fired Duct Burner	NO <sub>x</sub>	41.4	181
		CO	38.0	166
		VOC	3.7	16
		PM	7.5	24
		SO <sub>2</sub>	4.6	20
CG-3	Fugitive VOC (6)	VOC	0.4	2

\* Emission rates are based on and the facilities are limited by a maximum operating schedule of 8,760 hours per year.

### Case II: Duct Burner Firing Only

CG-1	375 MMBtu/hr (HHV) Duct Burner	NO <sub>x</sub>	56.2	38
		CO	37.5	26
		VOC	6.0	4
		PM	12.5	6
		SO <sub>2</sub>	8.8	6
CG-2	375 MMBtu/hr (HHV) Duct Burner	NO <sub>x</sub>	56.2	38
		CO	37.5	26
		VOC	6.0	4

PM	12.5	6
SO <sub>2</sub>	8.8	6

Total emissions from the combined operation of both Duct Burners (EPNs CG-1 and CG-2) in stand alone mode are as follows:

	Two 375 MMBtu/hr (HHV) Duct Burners	NO <sub>x</sub>		38
		CO		26
		VOC		4
		PM		6
		SO <sub>2</sub>		6
CG-3	Fugitive VOC (6)	VOC	0.4	<1

### Case III: Turbine Only Firing

CG-1	18 MW (ISO) Westinghouse Model 191 Gas Turbine	NO <sub>x</sub>	23.1	101
		CO	23.4	102
		VOC	0.8	4
		PM	1.5	7
		SO <sub>2</sub>	0.2	<1
CG-2	18 MW (ISO) Westinghouse Model 191 Gas Turbine	NO <sub>x</sub>	23.1	101
		CO	23.4	102
		VOC	0.8	4
		PM	1.5	7
		SO <sub>2</sub>	0.2	<1
CG-3	Fugitive VOC (6)	VOC	0.4	2

\* Emission rates are based on, and limited by, the turbines in stand alone mode and a maximum operating schedule of 8,760 hours per year.

Compliance with the annual emission limits and operating schedules is based on a rolling 12-month year rather than the calendar year.

**Boilers - Firing Refinery Fuel Gas:**

EMISSIONS FROM SOURCE NO. 19637 MAXIMUM ALLOWABLE EMISSION RATES

AIR CONTAMINANTS DATA				
EPN (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates *	
			lb/hr (4)	TPY (5)
81BF5601	No. 1 Package Boiler (366 MMBtu/hr)	NO <sub>x</sub>	3.95	
		CO	13.63	
		VOC	1.83	
		PM	3.66	
		SO <sub>x</sub>	9.10	
		NH <sub>3</sub>	1.83	
81BF5602	No. 2 Package Boiler (366 MMBtu/hr)	NO <sub>x</sub>	3.95	
		CO	13.63	
		VOC	1.83	
		PM	3.66	
		SO <sub>x</sub>	9.10	
		NH <sub>3</sub>	1.83	
81BF5603	No. 3 Package Boiler (366 MMBtu/hr)	NO <sub>x</sub>	3.95	
		CO	13.63	
		VOC	1.83	
		PM	3.66	
		SO <sub>x</sub>	9.10	
		NH <sub>3</sub>	1.83	
81BF5601, 81BF5602, and 81BF5603	Package Boilers (Nos. 1, 2, and 3)	NO <sub>x</sub>		35.5
		CO		131.5
		VOC		20.4
		PM	26.0	
		SO <sub>x</sub>	43.9	
		NH <sub>3</sub>	16.0	
81 FUG	81FUG	NH <sub>3</sub>	0.01	0.04
		VOC	1.0	4.0

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- (1) Emission point identification - emission point number from plot plan.
- (2) Specific point source name.
  - ISO - Rated electric output at International Standards Organization standard day conditions of 59°F, 1 atmosphere, and 60 percent relative humidity.
  - HHV - high heating value
- (3) VOC - volatile organic compounds as defined in Title 30 Texas Administrative Code § 101.1
  - NO<sub>x</sub> - total oxides of nitrogen
  - 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. Where PM is not listed, it shall be assumed that no PM greater than 10 microns is emitted.
  - CO - carbon monoxide
  - NH<sub>3</sub> - Ammonia
- (4) Turbine maximum hourly emissions based on minimum ambient temperature.
- (5) Turbine annual emissions based on base load at average annual ambient temperature of 68°F.
- (6) Fugitive emissions are an estimate only and should not be considered as a maximum allowable emission rate.
- (7) Hourly rates are based on maximum firing rate and a maximum operating schedule of 8,760 hours.
- (8) Compliance with annual emission limits is based on a rolling 12-month period.

EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

AIR CONTAMINANTS DATA

EPN (1)	Source Name (2)	Air Contaminant Name (3)	<u>Emission Rates *</u>	
			<u>lb/hr (4)</u>	<u>TPY (5)</u>

Dated March 15, 2006