

EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

Permit No. 20509/PSD-TX-790

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)	Name (3)	Air Contaminant lb/hr TPY	Emission Rates *	
CASE I: Turbines Only Firing Natural Gas					
23 ** (HPU-T1)	42.1 MMBtu/hr T-4500 Solar Centaur Turbine		NOx	11.00	30.10
			CO	16.30	24.90
			SO2	0.069	0.30
			VOC	0.30	1.31
			PM10	0.224	0.98
			HCl	0.01	0.05
24 ** (HPU-T2)	42.1 MMBtu/hr T-4500 Solar Centaur Turbine		NOx	11.00	30.10
			CO	16.30	24.90
			SO2	0.069	0.30
			VOC	0.30	1.31
			PM10	0.224	0.98
			HCl	0.01	0.05
25 ** (HPU-T3)	42.1 MMBtu/hr T-4500 Solar Centaur Turbine		NOx	11.00	30.10
			CO	16.30	24.90
			SO2	0.069	0.30
			VOC	0.30	1.31
			PM10	0.224	0.98
			HCl	0.01	0.05
CASE II: Turbines Firing Natural Gas and Fired Waste Heat Recovery Unit Burners Firing Isomerization Off-gas and Natural Gas and/or Merox Off-gas and Natural Gas					
23 ** (HPU-T1)	42.1 MMBtu/hr T-4500 Solar Centaur Turbine and 94.5 MMBtu/hr Waste Heat Boiler		NOx	12.89	39.55
			CO	17.88	32.76
			SO2	2.59	11.10
			VOC	0.93	4.07
			PM10	0.85	3.73

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			lb/hr	TPY		
		HCl			0.01	0.05

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Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates *	
			lb/hr	TPY
24 ** (HPU-T2)	42.1 MMBtu/hr T-4500 Solar Centaur Turbine and 94.5 MMBtu/hr Waste Heat Boiler	NOx	12.89	39.55
		CO	17.88	32.76
		SO2	2.59	11.10
		VOC	0.93	4.07
		PM10	0.85	3.73
		HCl	0.01	0.05
25 ** (HPU-T3)	42.1 MMBtu/hr T-4500 Solar Centaur Turbine and 94.5 MMBtu/hr Waste Heat Boiler	NOx	12.89	39.55
		CO	17.88	32.76
		SO2	2.59	11.10
		VOC	0.93	4.07
		PM10	0.85	3.73
		HCl	0.01	0.05
23, 24, 25 **	Maximum Combined Annual Emissions From All Turbines and Waste Heat Recovery Unit Burners	NOx		118.65
		CO		98.28
		SO2		33.30
		VOC		12.21
		PM10		11.19
		HCl		.15

** Emissions from each turbine are commingled and emitted through Emission Point Numbers 23, 24 and 25

OTHER EMISSIONS

FL-4	Plant Flare (9) (Flare-4)	NOx	0.09	0.40
		CO	0.02	0.08
		SO2	0.04	0.19
		VOC	1.38	6.05
		PM10	0.07	0.33
F-19 (F-HPU)	900 Deisobutanizer/ Heat Pump Area Fugitives	VOC	1.02	4.47

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			lb/hr	TPY
F-20 (F-B-RXTR)	800 Butamer Reactor Unit Area Fugitives (Includes Hydrotreater, Pentane Stripper Emissions) (8)		VOC	2.09 9.17
F-23 (F-DIB700)	700 Deisobutanizer (8) Area Fugitives		VOC	1.73 7.58
	Total Project Annual Fugitive Emissions		VOC	21.39

- (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) PM10 - particulate matter less than 10 microns
VOC - volatile organic compounds as defined in General Rule 101.1
NOx - total oxides of nitrogen
SO2 - sulfur dioxide
CO - carbon monoxide
HCl - hydrogen chloride
- (4) Turbine hourly emission rates were calculated based on an ambient temperature of 30°F.
- (5) Turbine annual emission rates were calculated based on an ambient average temperature of 60°F, which is conservatively lower than actual site annual average ambient temperature (approximately 68°F).
- (6) Fugitive emissions are an estimate only and should not be considered as a maximum allowable emission rate.
- (7) All references to heat rates are Lower Heating Value (LHV).
- (8) Fugitive monitoring requirements included for purpose of obtaining federal enforceability of emission limits.
- (9) Incremental Plant Flare Emissions from this project and other facilities regulated by this permit.

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

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			lb/hr	TPY

Hrs/day____Days/week____Weeks/year____or Hrs/year 8,760

Revised _____