

EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

Permit Numbers: 39693 and N63

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	Emission Rates *	
Point No. (1)	Name (2)	Name (3)	lb/hr	TPY**
PORT ARTHUR I - H2/COGENERATION FACILITY				
SMR1 STK	Reformer Furnace Stack	CO	21.6	59
		NO _x	81.0	87
		PM ₁₀	16.7	63
		SO ₂	7.30	28
		VOC	3.60	14
		NH ₃	24.9	110
GT6B STK	Gas Turbine Stack (GE Frame 6B)	CO	33.3	
		CO [MSS(5)]	166.5	
		CO (annual)		13
		NO _x 19.6		
		NO _x (MSS)	166.5	
		NO _x (annual)		7.4
		PM ₁₀	7.00	2.3
		SO ₂	0.92	0.3
		VOC	1.33	0.4
		VOC (MSS)	27.0	
FLARE1	Flare Pilots only	CO	0.043	0.2
		NO _x	0.022	0.1
		SO ₂	0.002	0.01
		VOC	0.031	0.14
FLARE1	Flare MSS	CO	1654.0	28.8
		NO _x	160.0	2.9
		SO ₂	<0.01	0.1
		VOC	0.2	0.3
H2 VENT1	Hydrogen Vent	CO	0.32	1.41

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Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates *	
			lb/hr	TPY***
PLTFUG1	Fugitives (4)	CO	2.20	8.7
		VOC	8.40	3.4
		NH ₃	0.059	0.3
VAPDEGR	Cold Solvent Degreaser	VOC	0.016	<0.1

PORT ARTHUR II - H2/COGENERATION FACILITY

The following four Emission Sources have a cap as noted:

SMR2 STK	SMR2 Reformer Furnace Stack	CO	20	
		NO _x [MSS and A/T(6)]	100.5	
		NO _x	10.1	
		PM ₁₀	13.2	56.5
		SO ₂	107.6	40.7
		VOC	5.32	4.7
GTG2STK	PAII Gas Turbine Stack	NH ₃ (7)	9.51	41.6
		CO	65.3	
		(GE Frame 7EA)CO(MSS and A/T)		166.5
		NO _x	36.3	
		NO _x (MSS and A/T)		166.5
		PM ₁₀	5.00	4.9
		SO ₂	2.96	1.2
		VOC	9.0	2.3
HRSG STK	Heat Recovery Steam Generator	VOC (MSS)		27.0
		CO	32.5	
		NO _x (MSS and A/T)	226.1	
		NO _x	22.6	
		PM ₁₀	7.06	18.8
		SO ₂	144	41.7

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Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates *	
			lb/hr	TPY***
			VOC 7.66	13.7
		NH ₃ (7)	5.5	23.3
FLARE2	PAII Flare	CO	1498	
			NO _x 143	
			SO ₂ <0.01	<0.1
			VOC 0.09	<0.1
Emissions Cap	SMR2 STK, GTG2STK,	CO		87.8
		HRSG STK, and FLARE2 NO _x		
			88.4	

The following four Emission Sources have a cap as noted:

SMR2 HPSV	SMR2 HP Steam Vent	MeOH	32.0	
			EtOH4.60	
		NH ₃	1.05	
HRSG SV	HRSG Steam Vent	MeOH	1.82	
			NH ₃ <0.1	
125 SV	125 lb Steam Vent	MeOH	17.8	
			EtOH1.22	
			NH ₃ 0.19	
SMR1 SV	SMR1 Steam Vent	MeOH	0.87	
			EtOH0.09	
			NH ₃ 0.09	
Emissions Cap	SMR2 HPSV, HRSG SV	MeOH		3.2
		125 SV, and SMR1 SV EtOH		
				1.7
			NH ₃	1.0

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Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates *	
			lb/hr	TPY***
			Amines <1.0	<1.0
SMR2 DEA VT	SMR2 Deaerator Vent	MeOH	0.54	2.3
			EtOH0.06	0.3
			NH ₃ 0.04	0.2
HRSG DEA VT	HRSG Deaerator Vent	MeOH	0.32	1.4
			EtOH0.04	0.2
			NH ₃ 0.02	0.1
SMR1 DEA VT	SMR1 Deaerator Vent	MeOH	0.27	1.2
			EtOH0.03	0.2
			NH ₃ 0.07	0.3
CT2	PAll Cooling Tower	MeOH	0.32	0.1
			PM ₁₀ 2.3	10.1
			NH ₃ 0.16	<0.1
SMR2 H2 VT 2.1		SMR2 Hydrogen Vent	CO	36.5
SMR2 TGBV	SMR2 Tail Gas Fuel Header Isolator Bleed Valve	MeOH	0.02	<0.01
		EtOH	<0.01	<0.01
			NH ₃ <0.01	<0.01
SMR2 MIX TEE	SMR2 Mix Tee Startup	MeOH	0.03	<0.01
		Steam Vent	EtOH	<0.01
			<0.01	
			NH ₃ <0.01	<0.01
SMR2NGMIXT	SMR2 Natural Gas Mix Tee	VOC Vent	123.5	0.4

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			<u>lb/hr</u>	<u>TPY***</u>
PAII ATM FL SMR2+HRSG Atmospheric		MeOH	0.03	0.2
		Flash	EtOH	<0.01
			<0.1	
			NH ₃ 0.02	0.1
PAII INT BDN	SMR2+HRSG	MeOH	0.02	0.1
		Process Gas Boiler	EtOH	<0.01
			<0.1	
		Intermittent Blowdown	NH ₃	0.01
		<0.1		

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Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates *	
			lb/hr	TPY***
PLT2 FUG	PAII Plant Fugitives	CO	2.50	8.8
			VOC 9.20	5.2
			NH ₃ 0.088	0.4
			Sulfur<0.01	<0.01
			NO _x 2.00	<0.01
NGISOBV	PAII Natural Gas Isolation	VOC Bleed Valve	47.7	0.1
			Sulfur	0.04
			<0.01	
SMR ID FAN SV	SMR2 ID Fan Turbine Inlet	MeOH Steam Vent	0.02	<0.01
			EtOH	<0.01
			<0.01	
			NH ₃ <0.01	<0.01
STG 125 EXV	STG 125# Exhaust Warm Up	MeOH Vent EtOH	0.27	<0.1
			0.03	<0.1
			NH ₃ 0.02	<0.1
STGGLANDV	STG Gland Condenser Vent	MeOH	0.02	0.1
			EtOH<0.01	<0.1
			NH ₃ <0.01	<0.1
STGSTARTV	STG Startup Vent	MeOH	7.73	0.1
			EtOH0.80	<0.1
			NH ₃ 0.42	<0.1
GTG2 NGV	PAII GTG Natural Gas Vent	VOC	3.98	1.4
			Sulfur<0.01	<0.1
SMR FANEDUC	SMR2 ID Fan Turbine Eductor	MeOH Steam Vent	0.01	<0.1
			EtOH	<0.01

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			<u>lb/hr</u>	<u>TPY***</u>
			<0.01	
		NH ₃	<0.01	<0.01

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Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates *	
			lb/hr	TPY***
SMR IDFANSV	SMR2 ID Fan Turbine	MeOH	0.19	<0.1
		Start Up Vent	EtOH	0.02
			<0.01	
			NH ₃ 0.01	<0.01
GTG2 ISBDN	PAII GTG Inlet Strainer	VOC	2.65	<0.1
		Blowdown	Sulfur	0.02
			<0.01	
GTG2FUELV1	GTG2 Fuel System Purge Vent 1	VOC	0.29	<0.01
			Sulfur<0.01	<0.01
GTG2FUELV2	GTG2 Fuel System Purge Vent 2	VOC	0.29	<0.01
			Sulfur<0.01	<0.01
GTGFUELDDBB	GTG2 Fuel Gas DB&B Vent	VOC	1.06	<0.01
			Sulfur<0.01	<0.01
GTGMANSUSV	GTG2 Manual Startup Purge Vent	VOC	48.3	0.2
		Sulfur	<0.01	<0.01
HRSG RFGDBB	HRSG Fuel Gas DB&B Vent	VOC	24.1	<0.1
			Sulfur7.79	<0.01
			CO 0.59	<0.01
HRSGIGNDBB	HRSG Ignition DB&B Vent	VOC	0.62	<0.01
			Sulfur<0.01	<0.01
HRSGSUSV	HRSG Start Up Steam Vent	MeOH	0.18	<0.1
			EtOH0.02	<0.01
			NH ₃ 0.1	<0.01
HRSGINPRES	HRSG Inlet Pressure Reduction	VOC	49.8	<0.1

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			lb/hr	TPY***
		Vent Sulfur	3.65	<0.01
		CO	1.22	<0.01
FEEDPV	PAII Feed System Purge Vent	VOC	7.06	<0.1
		Sulfur	0.03	<0.01

(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) CO - carbon monoxide

NO_x - total oxides of nitrogen

PM - particulate matter, suspended in the atmosphere, including PM₁₀

PM₁₀ - 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.

SO₂ - sulfur dioxide

VOC - volatile organic compounds as defined in Title 30 Texas Administrative Code § 101.1

NH₃ - ammonia

MeOH - methanol

EtOH - ethanol

(4) Fugitive emissions are an estimate only and should not be considered as a maximum allowable emission rate.

(5) MSS = Maintenance, start-up, or shutdown emission rate

(6) A/T = Alternate or Transitional Operating Modes.

(7) The lb/hr emission rate is not applicable during MSS or A/T.

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

_____ Hrs/day ___ Days/week ___ Weeks/year or 8,760 Hrs/year

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

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Page 10

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			<u>lb/hr</u>	<u>TPY***</u>

Dated August 18, 2006