

# Emission Sources - Maximum Allowable Emission Rates

Permit Number 20698 and PSDTX797M1

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, sources, and related activities. Any proposed increase in emission rates may require an application for a modification of the facilities covered by this permit.

## Air Contaminants Data

### Operating Scenario 1: Prior to permanent shutdown (planned for 4<sup>th</sup> Quarter of 2014) of the Solar T-16000 Turbine, Heat Recovery Unit, and Selective Catalytic Reduction Unit

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
42	Solar T-16000 Turbine (119.6 MMBtu/hr max heat input; 111.52 MMBtu/hr average heat input; 55 MMBtu/hr duct burner heat input)	CO	4.60	19.21
		NH <sub>3</sub>	1.99	8.33
		NO <sub>x</sub>	4.86	20.28
		PM	1.21	5.12
		PM <sub>10</sub>	1.21	5.12
		PM <sub>2.5</sub>	1.21	5.12
		SO <sub>2</sub>	0.39	1.66
		VOC	0.47	1.96
43	Continuous Catalyst Regeneration	CO	0.09	0.40
		NO <sub>x</sub>	0.04	0.19
		PM	0.03	0.13
		PM <sub>10</sub>	0.03	0.13
		PM <sub>2.5</sub>	0.03	0.13
		SO <sub>2</sub>	0.12	0.52
		VOC	0.03	0.15
		Cl <sub>2</sub>	0.01	0.02
		HCl	0.17	0.75
44	Reactor Heater (254.8 MMBtu/hour)	CO	11.31	43.52

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		NO <sub>x</sub>	20.59	79.24
		PM	1.45	5.58
		PM <sub>10</sub>	1.45	5.58
		PM <sub>2.5</sub>	1.45	5.58
		SO <sub>2</sub>	119.74	16.54
		VOC	0.15	0.56
46	Cooling Tower (5)	VOC	10.81	4.73
		PM	0.47	2.07
		PM <sub>10</sub>	0.47	2.07
		PM <sub>2.5</sub>	0.47	2.07
47	Lube Oil Storage Tank	VOC	0.02	0.01
48	CPI Separator	VOC	0.35	0.02
49	Slop Oil Storage Tank	VOC	0.02	0.01
50	Wastewater Bio Unit	VOC	0.01	0.04
51	Lube Oil Storage Tank	VOC	0.02	0.01
BEFFUG	Process Fugitives (5)	VOC	2.52	11.03
F2	Process Fugitives (5)	Cl <sub>2</sub>	0.03	0.15

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**Operating Scenario 2: Following construction and installation of the Hot Oil Heater, Oxygenate Removal Unit Heater, and Reactor Effluent Driers Heater (planned for 2014 3<sup>rd</sup> Quarter Major Turnaround), and permanent shutdown (planned for 4<sup>th</sup> Quarter of 2014) of the Solar T-16000 Turbine, Heat Recovery Unit, and Selective Catalytic Reduction Unit.**

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
43	Continuous Catalyst Regeneration	CO	0.09	0.40
		NO <sub>x</sub>	0.04	0.19
		PM	0.03	0.13
		PM <sub>10</sub>	0.03	0.13
		PM <sub>2.5</sub>	0.03	0.13
		SO <sub>2</sub>	0.12	0.52
		VOC	0.03	0.15
		Cl <sub>2</sub>	0.01	0.02
		HCl	0.17	0.75
44	Reactor Heater (254.8 MMBtu/hour heat input)	CO	9.94	43.52
		NO <sub>x</sub>	18.09	50.22
		PM	1.27	5.58
		PM <sub>10</sub>	1.27	5.58
		PM <sub>2.5</sub>	1.27	5.58
		SO <sub>2</sub>	119.74	16.54
		VOC	0.13	0.56
46	Cooling Tower (5)	VOC	10.81	4.73
		PM	0.47	2.07
		PM <sub>10</sub>	0.47	2.07
		PM <sub>2.5</sub>	0.47	2.07
47	Lube Oil Storage Tank	VOC	0.02	0.01

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48	CPI Separator	VOC	0.35	0.02
49	Slop Oil Storage Tank	VOC	0.02	0.01
50	Wastewater Bio Unit	VOC	0.01	0.04
51	Lube Oil Storage Tank	VOC	0.02	0.01
BEFFUG	Process Fugitives (5)	VOC	2.54	11.13
F2	Process Fugitives (5)	Cl <sub>2</sub>	0.03	0.15
HR15.614	Hot Oil Heater (126.8 MMBtu/hr heat input)	NO <sub>x</sub>	4.56	12.37
		CO	10.14	16.49
		VOC	0.38	1.24
		PM	0.63	2.06
		PM <sub>10</sub>	0.63	2.06
		PM <sub>2.5</sub>	0.63	2.06
		SO <sub>2</sub>	1.79	5.81
HR15.615	Oxygenate Removal Unit (ORU) Heater (13.4 MMBtu/hr heat input)	NO <sub>x</sub>	0.40	1.56
		CO	0.54	2.07
		VOC	0.04	0.16
		PM	0.07	0.26
		PM <sub>10</sub>	0.07	0.26
		PM <sub>2.5</sub>	0.07	0.26
		SO <sub>2</sub>	0.17	0.73
HR15.616	Reactor Effluent Driers (RED) Heater (26.0 MMBtu/hr heat input)	NO <sub>x</sub>	0.78	3.03
		CO	1.04	4.04
		VOC	0.08	0.30
		PM	0.13	0.50

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		PM <sub>10</sub>	0.13	0.50
		PM <sub>2.5</sub>	0.13	0.50
		SO <sub>2</sub>	0.33	1.42

- (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) 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 - total particulate matter, suspended in the atmosphere, including PM<sub>10</sub> and PM<sub>2.5</sub>, as represented
- PM<sub>10</sub> - total particulate matter equal to or less than 10 microns in diameter, including PM<sub>2.5</sub>, as represented
- PM<sub>2.5</sub> - particulate matter equal to or less than 2.5 microns in diameter
- CO - carbon monoxide
- Cl<sub>2</sub> - chlorine (HAP)
- HCl - hydrogen chloride (HAP)
- NH<sub>3</sub> - ammonia
- HAP - hazardous air pollutant as listed in § 112(b) of the Federal Clean Air Act or Title 40 Code of Federal Regulations Part 63, Subpart C
- (4) Compliance with annual emission limits (tons per year) is based on a 12 month rolling period.
- (5) Emission rate is an estimate and is enforceable through compliance with the applicable special condition(s) and permit application representations.

Date: May 30, 2014