

# Emission Sources - Maximum Allowable Emission Rates

Permit Number 90163

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

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
1	TDU Dryer (32 MMBtu/hr)	PM <sub>10</sub>	0.24	1.04
		PM <sub>2.5</sub>	0.24	1.04
		SO <sub>2</sub>	0.02	0.08
		NO <sub>x</sub>	3.14	13.74
		CO	2.64	11.54
		VOC	0.17	0.76
		HAP	0.06	0.32
7	TDU Steam Boiler (8 MMBtu/hr Natural Gas fired)	PM <sub>10</sub>	0.06	0.26
		PM <sub>2.5</sub>	0.06	0.26
		SO <sub>2</sub>	0.01	0.02
		NO <sub>x</sub>	0.78	3.44
		CO	0.66	2.89
		VOC	0.04	0.19
		HAP	0.01	0.06
8A	TDU Conveyor	PM <sub>10</sub>	0.02	0.03
		PM <sub>2.5</sub>	0.01	0.01
8B	TDU Transfer Points (Desorbed Solids Bin)	PM	0.15	0.29
		PM <sub>2.5</sub>	0.02	0.04
BH/Venturi	TDU Baghouse/Venturi Scrubber	PM <sub>10</sub>	0.09	0.38

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		PM <sub>2.5</sub>	0.09	0.38
		VOC	0.20	0.37
		H <sub>2</sub> SO <sub>4</sub>	0.01	0.01
		NH <sub>3</sub>	0.01	0.03
		HNO <sub>3</sub>	0.01	0.01
		H <sub>3</sub> PO <sub>4</sub>	0.01	0.01
		H <sub>2</sub> O <sub>2</sub>	0.01	0.03
		HAP	0.20	0.37 (8)
		H <sub>2</sub> S	0.01	
		HF	0.01	
		HCl	0.01	
CT	TDU Cooling Tower	PM	0.62	2.72
		PM <sub>10</sub>	0.62	2.72
		PM <sub>2.5</sub>	0.62	2.72
BOX-1	TDU Centrifuge Cake Rolloff	VOC	4.23	1.76
		HAP	4.23	0.04 (8)
		H <sub>2</sub> S	0.01	
		HF	0.01	
		HCl	0.03	
		NH <sub>3</sub>	0.15	0.06
		HNO <sub>3</sub>	0.01	0.01
		H <sub>3</sub> PO <sub>4</sub>	0.01	0.01
		H <sub>2</sub> O <sub>2</sub>	0.01	0.01
BOX-1B	TDU Centrifuge Cake Rolloff	VOC	4.23	1.76
		HAP	4.23	0.04 (8)
		H <sub>2</sub> S	0.01	
		HF	0.01	
		HCl	0.03	

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		NH <sub>3</sub>	0.15	0.06
		HNO <sub>3</sub>	0.01	0.01
		H <sub>3</sub> PO <sub>4</sub>	0.01	0.01
		H <sub>2</sub> O <sub>2</sub>	0.01	0.01
BOX-2	TDU Gas Treatment Cake Box	VOC	0.13	0.42
		HAP	0.13	0.01 (8)
		H <sub>2</sub> S	0.01	
		HF	0.01	
		HCl	0.01	
		NH <sub>3</sub>	0.01	0.01
		HNO <sub>3</sub>	0.01	0.01
		H <sub>3</sub> PO <sub>4</sub>	0.01	0.01
		H <sub>2</sub> O <sub>2</sub>	0.01	0.01
SHAKER	TDU Shaker Box	VOC	0.17	0.14
		HAP	0.17	0.01 (8)
		H <sub>2</sub> S	0.01	
		HF	0.01	
		HCl	0.01	
		NH <sub>3</sub>	0.01	0.01
		HNO <sub>3</sub>	0.01	0.01
		H <sub>3</sub> PO <sub>4</sub>	0.01	0.01
		H <sub>2</sub> O <sub>2</sub>	0.01	0.01
BIN-FUG	Feed Bin Fugitives (5)	VOC	10.18	18.64
		HAP	10.18	0.45 (8)
		H <sub>2</sub> S	0.01	
		HF	0.01	
		HCl	0.03	
		NH <sub>3</sub>	0.18	0.35

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		HNO <sub>3</sub>	0.01	0.03
		H <sub>3</sub> PO <sub>4</sub>	0.01	0.01
		H <sub>2</sub> O <sub>2</sub>	0.01	0.02
CARBFLT1	Carbon Canister Set 1	VOC	0.01	0.01
		HAP	0.01	0.013 (8)
		H <sub>2</sub> S	0.01	
		HF	0.01	
		HCl	0.01	
		NH <sub>3</sub>	0.01	0.01
		HNO <sub>3</sub>	0.01	0.01
		H <sub>3</sub> PO <sub>4</sub>	0.01	0.01
		H <sub>2</sub> O <sub>2</sub>	0.01	0.01
CARBFLT2	Carbon Canister Set 2	VOC	0.01	0.01
		HAP	0.01	0.01 (8)
		H <sub>2</sub> S	0.01	
		HF	0.01	
		HCl	0.01	
		NH <sub>3</sub>	0.01	0.01
		HNO <sub>3</sub>	0.01	0.01
		H <sub>3</sub> PO <sub>4</sub>	0.01	0.01
		H <sub>2</sub> O <sub>2</sub>	0.01	0.01
CARBFLT3	Carbon Canister Set 3	VOC	0.15	0.01
		HAP	0.15	0.01 (8)
		H <sub>2</sub> S	0.01	
		HF	0.01	
		HCl	0.01	
		NH <sub>3</sub>	0.01	0.01
		HNO <sub>3</sub>	0.01	0.01

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		H <sub>3</sub> PO <sub>4</sub>	0.01	0.01
		H <sub>2</sub> O <sub>2</sub>	0.01	0.01
FUG-TDU	TDU Piping Fugitives (5)	VOC	0.16	0.18
		HAP	0.03	0.02 (8)
		H <sub>2</sub> S	0.01	
		HF	0.01	
		HCl	0.01	
		NH <sub>3</sub>	0.024	0.10
		HNO <sub>3</sub>	0.01	0.01
		H <sub>3</sub> PO <sub>4</sub>	0.01	0.01
		H <sub>2</sub> O <sub>2</sub>	0.01	0.04
PROD-LOAD	TDU Product Loading	VOC	0.36	0.01
		HAP	0.36	0.01 (8)
		H <sub>2</sub> S	0.01	
		HF	0.01	
		HCl	0.01	
		NH <sub>3</sub>	0.05	0.01
		HNO <sub>3</sub>	0.01	0.01
		H <sub>3</sub> PO <sub>4</sub>	0.01	0.01
		H <sub>2</sub> O <sub>2</sub>	0.02	0.01
FUG-2	CKD Pile	PM	0.01	0.05
		PM <sub>10</sub>	0.01	0.05
		PM <sub>2.5</sub>	0.01	0.05
BH5	Stabilization Building 2 Bins Dust Collector	PM <sub>10</sub>	0.01	0.01
		PM <sub>2.5</sub>	0.01	0.01
BH6	Stabilization Building 2 Bins Dust Collector	PM <sub>10</sub>	0.01	0.01
		PM <sub>2.5</sub>	0.01	0.01

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FUG-1	Stabilization Building 2 Process Fugitives (5)	PM <sub>10</sub>	0.02	0.02
		PM <sub>2.5</sub>	0.01	0.01
		VOC	15.08	(6)
		HAP	15.08	(7) (8)
		H <sub>2</sub> S	0.01	
		HF	0.01	
		HCl	0.42	
		NH <sub>3</sub>	0.36	2.90
		HNO <sub>3</sub>	0.12	1.11
		H <sub>3</sub> PO <sub>4</sub>	0.03	0.42
		H <sub>2</sub> O <sub>2</sub>	0.02	0.15
BH1	Stabilization Building 2 Pans Baghouse	PM <sub>10</sub>	0.03	0.04
		PM <sub>2.5</sub>	0.01	0.01
		VOC	135.76	(6)
		HAP	135.76	(7) (8)
		H <sub>2</sub> S	0.01	
		HF	0.11	
		HCl	3.77	
		NH <sub>3</sub>	3.25	2.61
		HNO <sub>3</sub>	1.09	1.00
		H <sub>3</sub> PO <sub>4</sub>	0.24	0.38
		H <sub>2</sub> O <sub>2</sub>	0.16	0.13
BH2	Stabilization Building 3 Pans Baghouse	PM <sub>10</sub>	0.02	0.02
		PM <sub>2.5</sub>	0.01	0.01
		VOC	122.74	(6)
		HAP	122.74	(7) (8)
		H <sub>2</sub> S	0.01	
		HF	0.02	

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		HCl	2.11	
		NH <sub>3</sub>	2.38	2.18
		HNO <sub>3</sub>	0.60	0.84
		H <sub>3</sub> PO <sub>4</sub>	0.13	0.21
		H <sub>2</sub> O <sub>2</sub>	0.14	0.11
BH7	Stabilization Building 3 Pans Baghouse	PM <sub>10</sub>	0.02	0.02
		PM <sub>2.5</sub>	0.01	0.01
		VOC	122.74	(6)
		HAP	122.74	(7) (8)
		H <sub>2</sub> S	0.01	
		HF	0.18	
		HCl	2.11	
		NH <sub>3</sub>	2.38	2.18
		HNO <sub>3</sub>	0.60	0.84
		H <sub>3</sub> PO <sub>4</sub>	0.13	0.21
		H <sub>2</sub> O <sub>2</sub>	0.14	0.11
FUG-3	Stabilization Building 3 Process Fugitives (5)	PM <sub>10</sub>	0.01	0.01
		PM <sub>2.5</sub>	0.01	0.01
		VOC	27.28	(6)
		HAP	27.28	(7) (8)
		H <sub>2</sub> S	0.01	
		HF	0.01	
		HCl	0.47	
		NH <sub>3</sub>	0.53	0.49
		HNO <sub>3</sub>	0.13	0.19
		H <sub>3</sub> PO <sub>4</sub>	0.03	0.05
		H <sub>2</sub> O <sub>2</sub>	0.03	0.02
	<b>Stabilization Buildings Annual</b>	<b>VOC</b>		<b>22.23</b>

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		<b>HAP</b>		<b>4.28 (8)</b>
BH3	Stabilization Building 3 CKD Bin Baghouse	PM <sub>10</sub>	0.01	0.01
		PM <sub>2.5</sub>	0.01	0.01
BH8	Stabilization Building 3 CKD Bin Baghouse	PM <sub>10</sub>	0.01	0.01
		PM <sub>2.5</sub>	0.01	0.01
BH4	Catalyst Building Baghouse Scrubber	PM <sub>10</sub>	0.01	0.01
		PM <sub>2.5</sub>	0.01	0.01
		HAP	0.01	0.01
CAT-FUG1	Drum Loading Fugitives 1 (from Catalyst Building) (5)	PM <sub>10</sub>	0.01	0.01
		PM <sub>2.5</sub>	0.01	0.01
		HAP	0.01	0.01
CAT-FUG2	Drum Loading Fugitives 2 (from outside) (5)	PM <sub>10</sub>	0.01	0.01
		PM <sub>2.5</sub>	0.01	0.01
		HAP	0.01	0.01
TO	Thermal Oxidizer (15 MMBtu/hr)	PM <sub>10</sub>	0.12	0.51
		PM <sub>2.5</sub>	0.12	0.51
		SO <sub>2</sub>	54.80	26.27
		NO <sub>x</sub>	25.43	28.53
		CO	1.24	5.41
		VOC	6.10	1.56
		HAP	120.8	9.11 (8)
		H <sub>2</sub> S	0.01	
		Total As (9)	10.70	
		HF	40.40	
		HCl	107.00	
		H <sub>2</sub> SO <sub>4</sub>	0.01	0.03
		Total Bromine	98.60	98.64



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		Total Iodine	44.30	14.77
		NH <sub>3</sub>	0.17	0.12
		HNO <sub>3</sub>	17.5	8.99
		H <sub>3</sub> PO <sub>4</sub>	2.40	4.76
		H <sub>2</sub> O <sub>2</sub>	0.06	0.11
Maintenance, Startup, and Shutdown (MSS)				
TANK-MSS	Tank Opening MSS	VOC	3.25	0.07
		HAP	0.13	0.004
EQUIP-MSS	Equipment Purging and Opening	VOC	17.36	0.04
		HAP	3.49	0.01 (8)
		H <sub>2</sub> S	0.01	
		HF	0.01	
		HCl	0.01	
		NH <sub>3</sub>	0.01	0.01
		HNO <sub>3</sub>	0.01	0.01
		H <sub>3</sub> PO <sub>4</sub>	0.01	0.01
		H <sub>2</sub> O <sub>2</sub>	0.01	0.01
TPAINT-MSS	TDX Sitewide Painting	PM <sub>10</sub>	0.49	0.05
		PM <sub>2.5</sub>	0.49	0.05
		VOC	16.65	1.66
		HAP	0.40	0.04
UPAINT-MSS	USET Sitewide Painting	PM <sub>10</sub>	0.01	0.01
		PM <sub>2.5</sub>	0.01	0.01
		VOC	18.77	0.19
		HAP	0.80	0.01
TBLAST-MSS	TDX Sitewide Abrasive Blasting	PM <sub>10</sub>	0.17	0.01

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		PM <sub>2.5</sub>	0.03	0.01
UBLAST-MSS	USET Sitewide Abrasive Blasting	PM <sub>10</sub>	0.34	0.01
		PM <sub>2.5</sub>	0.05	0.01
TO-SRTMSS	Thermal Oxidizer Startup	PM <sub>10</sub>	0.06	0.01
		PM <sub>2.5</sub>	0.06	0.01
		SO <sub>2</sub>	0.01	0.01
		NO <sub>x</sub>	0.45	0.01
		CO	3.09	0.06
		VOC	0.04	0.01
		HAP	0.01	0.01
TO-VNTMSS	Thermal Oxidizer MSS Venting	VOC	8.55	0.03
		HAP	8.21	0.03
		H <sub>2</sub> S	0.01	
		NH <sub>3</sub>	0.18	0.01
		HNO <sub>3</sub>	5.49	0.01
		H <sub>3</sub> PO <sub>4</sub>	0.22	0.01
		H <sub>2</sub> O <sub>2</sub>	0.01	0.01
DWELL-MSS	Deepwell Maintenance	VOC	2.85	0.04
		HAP	2.85	0.04 (8)
		H <sub>2</sub> S	0.01	
		HF	0.01	
		HCl	0.01	
		NH <sub>3</sub>	0.01	0.01
		HNO <sub>3</sub>	0.01	0.01
		H <sub>3</sub> PO <sub>4</sub>	0.01	0.01
		H <sub>2</sub> O <sub>2</sub>	0.01	0.01
FLTCHG-MSS	Baghouse Filter Changes	PM <sub>10</sub>	0.08	0.01
		PM <sub>2.5</sub>	0.01	0.01

Emission Sources - Maximum Allowable Emission Rates

- (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  
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  
H<sub>2</sub>S - hydrogen sulfide (delisted HAP)  
As - arsenic (HAP)  
H<sub>2</sub>SO<sub>4</sub> - sulfuric acid  
NH<sub>3</sub> - ammonia  
HNO<sub>3</sub> - nitric acid  
H<sub>3</sub>PO<sub>4</sub> - phosphoric acid  
H<sub>2</sub>O<sub>2</sub> - hydrogen peroxide  
HCl - hydrogen chloride (HAP)  
HF - hydrogen fluoride (HAP)
- (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.
- (6) The annual VOC emissions from this source are included in the Stabilization Buildings Annual VOC Emission Cap of 22.23 tpy.
- (7) The annual H<sub>2</sub>S, HF, and HCl emissions from this source are included in the Stabilization Buildings Annual HAP cap of 4.28 tpy.
- (8) Emission limit applies to the sum of total HAP emissions ( including but not limited to HF and HCl) and H<sub>2</sub>S emissions.
- (9) Total Arsenic includes elemental arsenic and arsenic compounds.

Date: February 3, 2016