Emission Sources - Maximum Allowable Emission Rates

Permit Number 1733A

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 (5)
1-1-Barge	Capro Barge Loading Fugitives	Caprolactam	0.07	0.15
		Sulfuric Acid	<0.01	<0.01
7-1-1	500 NSP Neut Standpipe	VOC	0.01	0.01
7-1-2	700 NSP Neut Standpipe	VOC	0.01	0.01
7-1-8	S300-Benz Scrubber Vent	Benzene	0.01	0.01
		VOC	0.02	0.03
7-1-9	D400 Slurry Settling Drum	PM	0.01	0.01
7-1-11	D504A Wash H2O Stg Tank	VOC	0.07	0.01
7-1-12	D504B Wash H2O Stg Tank	VOC	0.01	0.01
7-1-15	D508 Neut Separator Drum	VOC	0.49	0.01
7-1-16	D509 Neut Circ	VOC	0.54	0.01
7-1-17	D511 Neut Crude Tank	VOC	1	0.09
7-1-20	D517 Kettle Dump Drum	VOC	0.01	0.01
7-1-21	D523A Distillat'n Lights Tank	VOC	0.01	0.01
7-1-23	D525A T506 Check Tank	VOC	1.32	0.04
7-1-25	Storage Tank Vent	VOC	6.42	0.34
7-1-26	D529 Kettle Ovhds Tank	VOC	0.01	0.01
7-1-27	D534 Kettle Feed	VOC	0.18	0.01

Emission Sources - Maximum Allowable Emission Rates

	Tank			
7-1-28	D540 Jet H2O Stg Tank	VOC	0.01	0.01
7-1-29	D701 Anone Surge Tank	VOC	6.65	0.06
7-1-31	D705 Oxime Holdup Tank	VOC	0.22	0.01
7-1-32	D708 Neut Sptr Drum	VOC	0.62	0.01
7-1-33	D709 Neut Circ Drum	VOC	0.32	0.01
7-1-34	D711 Neut Crude Stg Tank	VOC	0.05	0.01
7-1-36	D723A Dist Lights Tank	VOC	0.02	0.01
7-1-37	D724 Dist Heavies Tank	VOC	0.1	0.01
7-1-38	D725A Product Check Tank	VOC	0.15	0.01
7-1-40	D734 900 Dist Lights Tank	VOC	0.02	0.01
7-1-41	D745B1 Poly Return Stg Tank	VOC	0.01	0.01
7-1-42	D745C Oxime Salt Stg Tank	VOC	0.01	0.01
7-1-43	D745D Mthrliq Stg Tank	VOC	0.01	0.01
7-1-45	D-909 Jet Water Storage	VOC	0.01	0.01
7-1-46	S400 (NH4)2SO4 Scrubber	PM	4.86	21.29
		VOC	4.98	21.81
7-1-48	T909 Jet Vent	VOC	0.02	0.09
7-1-50	HW400-CR400 OHDS Receiver	VOC	0.01	0.01
7-1-51	HW500-CR500 OHDS Receiver	VOC	0.01	0.01
7-1-53	T504 Jet Water Receiver (HW504)	VOC	0.01	0.01

Emission Sources - Maximum Allowable Emission Rates

7-1-54	T506 Jet Water Receiver (HW506)	VOC	0.01	0.01
7-1-55	T705Jet Water Receiver (HW705)	VOC	0.01	0.01
7-1-56	HW801 Jet Water Receiver	VOC	0.01	0.01
7-1-58	K500A EJ507A Jet Vent	VOC	0.02	0.1
7-1-59	K500D EJ507B Vent	VOC	0.02	0.1
7-1-60	T504 EJ-T504 Jet Vent	VOC	0.01	0.01
7-1-61	T506 EJ-T506 Jet Vent	VOC	0.01	0.01
7-1-62	T706 EJ-T706 Jet Vent	VOC	0.02	0.08
7-1-63	T707 EJ-T707 Jet Vent	VOC	0.01	0.03
7-1-64	T820-NH2OH Drying Tower	VOC	0.01	0.01
7-1-65	T907 EJ-T907 Jet Vent	VOC	0.01	0.01
7-1-66	Tank Farm Process Fugs (5)	Benzene	0.42	1.84
		NH_3	0.03	0.14
		VOC	0.59	2.57
7-1-71/7-1-72	Capro 1 Rail and Truck Loading	Caprolactam	3.15	0.47
7-1-73	S-500 Scrubber Stack	Benzene	0.17	0.76
		NH_3	0.60	2.65
		SO_2	2.40	10.52
		SOx	2.67	11.69
		VOC	0.75	3.27
7-1-74	Ammonium Sulfate Loading	PM_{10}	0.23	0.34
		VOC	0.04	0.06

Emission Sources - Maximum Allowable Emission Rates

7-1-75	Kettle Dump	VOC	1.13	0.09
7-1-80	D600	VOC	0.22	0.02
7-1-90	Cooling Tower CT-700 (5)	VOC	2.1	9.2
7-1-91	D713C Extract Stg Tank	VOC	0.01	0.01
7-1-101	D409 Neutralization Circulation Drum	Caprolactam	0.15	0.01
7-2-2	AN1 Fugitive Emission (5)	NH_3	0.06	0.24
		VOC	1.54	6.75
7-2-3/7-2-4	Anone 1 Truck/Railcar Loading	VOC	16.72	1.2
7-2-6	BR360 Burner	CO	0.36	1.56
		NO_x	0.42	1.85
		PM_{10}	0.03	0.14
		SO_2	0.01	0.01
		VOC	0.02	0.1
7-2-7	BR370 Burner	CO	0.36	1.56
		NO_x	0.42	1.85
		PM_{10}	0.03	0.14
		SO_2	0.01	0.01
		VOC	0.02	0.1
7-2-8	D841 Dilute Acid Water Tank	Organic Acids	0.01	0.01
7-2-9	D17 Anolon Storage Tank	VOC	0.6	0.28
7-2-11	D21A Tech Anol Feed Tank	VOC	0.02	0.06
7-2-12	D21B Tech Anol Storage K	VOC	0.02	0.06
7-2-13	D28 D-Anone Storage Tank	VOC	11.92	2.07

Emission Sources - Maximum Allowable Emission Rates

7-2-14	D30B Dehydro Feed Tank	VOC	0.2	0.02
7-2-16	D30C Cyclohexanol Tank	VOC	0.2	0.13
7-2-17	D33A/B Cyclohexanone Tanks	VOC	8.49	0.73
7-2-18	D34A Cyclohexanone Tank	VOC	1	0.66
7-2-19	D34B Cyclohexanone Tank	VOC	1	0.66
7-2-021	D56 Conc Catalyst Tank	VOC	0.36	0.01
7-2-22	D61 Cyclohexanone Tank	VOC	4.24	0.18
7-2-23	D62 Cyclohexanone Tank	VOC	4.24	0.18
7-2-24	D113 Anolon Tank	VOC	0.02	0.03
7-2-25	D189 Chclohexanol Tank	VOC	21.71	2.12
7-2-27	D2A Dilute Catalyst Tank	VOC	1.22	0.02
7-2-40	D899 Cyclohexanone Tank	VOC	2.48	0.65
7-2-101	Dehydrogenation Vent	VOC	18.94	0.45
9-1-24	D60A Cyclohexane Storage	VOC	0.41	0.53
9-1-25	D60B Cyclohexane Storage	VOC	0.26	0.66
9-1-26	D60C Cyclohexane Storage	VOC	0.26	0.66
9-1-27	D900 Conc Acid Water Tank	Organic Acids	0.08	0.36
		VOC	0.85	3.7
11-1-2	R170 Catalytic Incinerator (8)	CO	17.78	75.86

Emission Sources - Maximum Allowable Emission Rates

		NO_x	0.03	0.13
		PM_{10}	0.01	0.03
		VOC	28.29	108.22
11-1-3	BR300 Dehydro Burner	CO	0.36	1.56
		NO_x	0.42	1.85
		PM_{10}	0.03	0.14
		SO_2	0.01	0.01
		VOC	0.02	0.1
11-1-4	BR310 Dehydro Burner	CO	0.36	1.56
		NO_x	0.42	1.85
		PM_{10}	0.03	0.14
		SO_2	0.01	0.01
		VOC	0.02	0.1
11-1-5	BR320 Dehydro Burner	CO	0.36	1.56
		NO_x	0.42	1.85
		PM_{10}	0.03	0.14
		SO_2	0.01	0.01
		VOC	0.02	0.1
11-1-6	BR330 Dehydro Burner	CO	0.36	1.56
		NO_x	0.42	1.85
		PM_{10}	0.03	0.14
		SO_2	0.01	0.01
		VOC	0.02	0.1
11-1-9	D156 Crude Anone Tank	VOC	4.3	2.09
11-1-21	D28 Co-product Storage	VOC	0.38	0.26

Emission Sources - Maximum Allowable Emission Rates

11-1-23	D-404B EP-323 Storage	VOC	0.06	0.2
11-1-25	D114 Conc Catalyst Tank	VOC	0.77	0.01
11-1-26	D116 Dilute Catalyst Tank	VOC	3.96	0.48
11-1-39	Dehydro Feed Tank	VOC	1.84	0.13
11-1-40	Heavies Cracking Feed	VOC	0.42	0.36
11-1-43	Dehydro Methane Burner BR340 BR340	CO	0.64	2.81
		NO_x	0.76	3.34
		PM_{10}	0.06	0.25
		SO_2	0.01	0.02
		VOC	0.04	0.18
11-1-47	Process Fugitives (5)	VOC	5.03	22.01
11-1-49	Process Fugitives (5)	NH_3	0.12	0.52
11-1-50/11-1-51	Railcar and Truck Loading Losses	VOC	8.67	0.34
11-1-52	Off-Site Barge Loading	VOC	12.08	1.52
11-1-72	Cyclohexanone Tank	VOC	7.36	2.61
11-1-91	Cooling Tower CT-1100 (5)	VOC	0.63	2.76
11-1-100	Thermal Oxidizer R180	CO	37.44	13.11
		NO_x	14.91	4.5
		PM_{10}	0.6	0.21
		SO_2	0.05	0.02
		VOC	0.89	0.31
11-1-101	Dehydrogenation Vent	VOC	1.44	0.5

Emission Sources - Maximum Allowable Emission Rates

11-1-104	Anone 2 Low Pressure Vents	CO	140	1.6
		VOC	278.31	3.93
12-1-1	Vent Gas Flare	CO (10)	0.02	0.1
		NO_x (10)	121.51	532.2
		VOC	0.01	0.01
		CO (9)	2.18	8.16
		NO_x (9)	220.25	278.84
12-1-2	Burner Flare 1 FL-170B	CO (10)	4.37	19.13
		NO (10)	756	(6)
		NO_x (10)	2.19	9.58
		VOC (10)	0.09	0.39
		CO (9)	51.97	38.52
		NO (6)(9)	771.43	31.1
		NO_x (9)	11.23	4.6
		VOC (9)	0.06	0.05
12-1-29	Catalytic Converter Vent	PM_{10}	0.01	0.01
12-1-30	Scrubber Vent	PM_{10}	0.11	0.02
12-1-31	Catalyst Oven Vent	PM_{10}	0.01	0.01
12-1-33	Catalyst Oven Vent	PM_{10}	0.01	0.01
12-1-34	Catalyst Oven Vent	PM_{10}	0.01	0.01
12-1-35	Catalyst Oven Vent	PM_{10}	0.01	0.01
12-1-36	Catalyst Oven Vent	PM_{10}	0.01	0.01
12-1-44	Catalyst Transfer Station	PM_{10}	1.56	0.25

Emission Sources - Maximum Allowable Emission Rates

12-1-45	HA 2 Ammonia Fugitive (5)	NH_3	0.56	2.46
		NO	6	10
		H_2SO_4	0.03	0.13
12-1-46	Ammonia Flare	CO (10)	0.28	1.24
		NH_3 (10)	3.06	0.02
		NO_x (10)	27.57	0.85
		VOC (10)	0.01	0.03
		CO (9)	22.51	6.04
		NH_3 (9)	25.5	0.2
		NO_x (9)	37.43	0.98
		VOC (9)	0.01	0.01
12-1-47	Carbon Beds Normal Emissions and (7)	1, 1, Trichloroethane	1.9	0.18
		Carbon Tetrachloride	1.9	0.18
		VOC	2.36	0.23
12-1-48	Burner Flare 2 FL-171	CO (10)	5.8	25.37
		NO (10)	1172	(6)
		NO_x (10)	2.9	12.71
		VOC (10)	0.12	0.52
		CO (9)	62.33	52.03
		NO (6)(9)	1207.87	31.1
		NO_x (9)	15.55	6.17
		VOC (9)	0.08	0.06
12-1-49	Nitric Acid Loading Losses	Nitric Acid	0.31	1.01
12-1-50	HA 2 Nitric Oxide Fugitives	NO	1.51	6.61
12-1-52	D-164A Dilute Sulfuric Acid Tank	H_2SO_4	0.01	0.01

Emission Sources - Maximum Allowable Emission Rates

12-1-53	D-164B Dilute Sulfuric Acid Tank	H_2SO_4	0.01	0.01
12-1-54	HA 2 HNO2/HNO3 Fugitives (5)	HNO_2/HNO_3	0.14	0.63
12-2-4	Cooling Tower CT-20 (5)	VOC	1.55	6.81
12-2-48	Deepwell Tank	VOC	0.01	0.01
12-2-49	Deepwell Tank	VOC	0.01	0.01
12-2-50	Deepwell Tank	VOC	0.01	0.01
12-2-51	Deepwell Tank	VOC	0.01	0.01
12-2-52	Deepwell Tank	VOC	0.01	0.01
12-2-53	Deepwell Tank	VOC	0.01	0.01
12-2-54	Deepwell Tank	VOC	0.01	0.01
12-2-55	Deepwell Tank	VOC	0.56	0.11
14-1-1	Ammonium Sulfate Loading	PM	0.51	0.41
		VOC	0.09	0.07
14-1-8	Lactam Separator	VOC	0.05	0.01
14-1-9	Cooling Tower CT-30 (5)	VOC	0.84	3.68
14-1-10	Purge Drums	VOC	0.01	0.01
14-1-11	Overhead Drum	VOC	0.01	0.01
14-1-12	Centrifuge Feed Tank	VOC	0.01	0.01
14-1-13	Centrifuge Feed Tank	VOC	0.01	0.01
14-1-16	Storage Tank	VOC	0.07	0.01
14-1-20	Hot Well Tank	VOC	0.01	0.02
14-1-21	Hot Well Tank	VOC	0.01	0.01
14-1-22	Hot Well Tank	VOC	0.01	0.01
14-1-23	Hot Well Tank	VOC	0.01	0.01

Emission Sources - Maximum Allowable Emission Rates

14-1-27	Crude Lactam Storage	VOC	0.01	0.01
14-1-29	Extract Storage	VOC	0.04	0.12
14-1-30	Extract Storage	VOC	0.17	0.77
14-1-31	Extract Storage	VOC	0.17	0.77
14-1-32	Storage Tank	VOC	0.01	0.01
14-1-35	Extract Storage	VOC	0.15	0.01
14-1-36	Foreruns Receiver	VOC	0.22	0.07
14-1-37	Lights Storage	VOC	0.01	0.01
14-1-38	Kettle Feed Drum	VOC	0.01	0.01
14-1-39	Kettle Overheads	VOC	0.01	0.01
14-1-40	Mother Liquor Storage	VOC	0.01	0.01
14-1-41	Mother Liquor Receiver	VOC	0.01	0.01
14-1-44	Water Storage	VOC	0.01	0.01
14-1-45	Concentrated Storage	VOC	0.93	0.02
14-1-46	Oxime Salt Storage	VOC	1.04	0.04
14-1-47	Mother Liquor Storage	VOC	0.01	0.01
14-1-52-1	D203A	VOC	0.01	0.01
14-1-52-2	D203B	VOC	0.01	0.01
14-1-54	D-140/EV-140	VOC	0.01	0.01
14-1-56	Foreruns Tower Receiver	VOC	0.2	0.89
14-1-57	Finishing Tower	VOC	0.01	0.04
14-1-58	E-511	VOC	0.01	0.01
14-1-60	D-431	VOC	0.01	0.02
14-1-61	Kettle	VOC	0.02	0.1

Emission Sources - Maximum Allowable Emission Rates

14-1-64	E-720	VOC	0.01	0.05
14-1-68/14-1-83	Truck and Rail Loading	Caprolactam	3.15	1.88
14-1-69	Scrubber S601	PM	5.14	15
		VOC	4.98	21.81
14-1-70	Vacuum Jet	VOC	0.02	0.1
14-1-73	Capro 2 Process Fugitives (5)	Benzene	0.33	1.44
		NH_3	0.02	0.09
		VOC	0.35	1.53
14-1-75	Benzene Crude Scrubber S-260	Benzene	0.01	0.01
		VOC	0.02	0.03
14-1-76	SO_2 Scrubber S625	Benzene	0.22	0.95
		NH_3	0.60	2.65
		SO_2	2.40	10.52
		SOx	2.67	11.69
		VOC	0.88	3.84
14-1-78	Overhead Drum	VOC	3.11	0.15
14-1-86	Kettle Dump Trailer	VOC	2.06	0.11
14-1-90	Extraction Tower Bottoms	VOC	0.01	0.01
Planned maintenance, startup, and shutdown (MSS) activities and emissions authorized below this heading				
AN1MSS	Anone 1 MSS Emissions (7)	NH_3	2.3	0.47
		PM/PM_{10}	0.07	0.01
		VOC	57.57	1.33
AN1MSS	Anone 1 Shutdown Emissions (7)	NH_3	1.22	0.1
		VOC	3.51	0.27
AN2MSS	Anone 2 MSS	NH_3	0.05	0.18

Emission Sources - Maximum Allowable Emission Rates

		PM/PM_{10}	0.2	0.01
		VOC	217.5	6.3
AN2MSS	Anone 2 Shutdown Emissions (7)	NH_3	0.92	0.09
		VOC	24.92	0.94
CP1MSS	Caprolactam 1 MSS Emissions (7)	H_2SO_4	0.93	0.01
		NH_3	1.2	0.48
		VOC	32.58	3.08
CP1MSS	Caprolactam 1 Shutdown Emissions (7)	NH_3	0.21	0.08
		VOC	47.04	2.14
CP2MSS	Caprolactam 2 MSS Emissions (7)	H_2SO_4	0.93	0.01
		NH_3	1.2	0.49
		VOC	14.99	3.09
CP2MSS	Caprolactam 2 Shutdown Emissions (7)	NH_3	0.2	0.08
		VOC	35.86	1.66
HAMSS	Hydroxylamine MSS Emissions (7)	NO	76.36	1.26
		NH_3	1.84	0.93
		PM/PM_{10}	0.12	0.01
		VOC	0.16	0.17
HAMSS	Hydroxylamine Shutdown Emissions (7)	NO	309.89	4.96
7-1-8	Caprolactam 1 MSS Emissions (7)	Benzene	0.18	0.04
7-1-8	Caprolactam 1 Shutdown Emissions (7)	Benzene	0.01	0.01
9-1-24	D-60A IFR MSS (7)	VOC	2.37	0.14
9-1-25	D-60B IFR MSS (7)	VOC	10.11	0.03
9-1-26	D-60C IFR MSS (7)	VOC	10.11	0.03

Emission Sources - Maximum Allowable Emission Rates

9-1-28	D-193B IFR MSS (7)	VOC	6.65	0.15
11-1-100	Anone 1 Shutdown Emissions (7)	CO	39.99	0.96
		NO_x	10.04	0.24
		VOC	36.06	1.17
11-1-100	Anone 2 Shutdown Emissions (7)	CO	66.45	2.81
		NO_x	16.69	0.71
		VOC	50.71	3.44
11-1-100	Anone 2 Incinerator MSS (7)	CO	37.44	6.29
		NO_x	14.91	2.16
		VOC	1.06	0.18
12-1-1	Hydroxylamine MSS Emissions (7)	NO	211.21	22.18
12-1-1	Hydroxylamine Shutdown Emissions (7)	CO	7.79	0.75
		NO_x	3.9	0.37
12-1-46	Hydroxylamine MSS Emissions (7)	CO	22.07	0.81
		NH_3	27.53	1.28
		NO_x	16.34	0.73
		VOC	0.25	0.02
12-1-46	Hydroxylamine Shutdown Emissions (7)	CO	11.04	2.12
		NH_3	2.08	0.4
		NO_x	2.33	0.45
		VOC	0.12	0.02
14-1-75	Caprolactam 2 MSS Emissions (7)	Benzene	0.18	0.03
14-1-75	Caprolactam 2 Shutdown Emissions (7)	Benzene	0.01	0.01

Emission Sources - Maximum Allowable Emission Rates

(1) Emission point identification - either specific equipment designation or emission point number (EPN) from plot plan.
(2) Specific point source name. For fugitive sources use area name or fugitive source name.
(3) CO - carbon monoxide
H_2SO_4 - sulfuric acid
NO_x - total oxides of nitrogen. This does not include any NO emissions listed separately.
NH_3 - ammonia
NO - nitric oxide
PM - particulate matter, suspended in the atmosphere, including PM_{10}.
PM_{10} - 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.
SO_2 - sulfur dioxide
SO_x - total oxides of sulfur. This includes SO_2 and SO_3 (sulfur trioxide).
VOC - volatile organic compounds as defined in Title 30 Texas Administrative Code § 101.1, including benzene.
(4) Compliance with annual emission limits (tons per year) is based on a 12 month rolling period.
(5) Emission rate is an estimate and compliance is demonstrated by meeting the requirements of the applicable special conditions and permit application representations.
(6) Total combined annual nonpilot/nonassist gas NO emissions from EPNs 12-1-2 and 12-1-48 shall not exceed 31.10 tons per year. Compliance with the annual emissions limit is based on a rolling 12-month average.
(7) Planned maintenance, startup, and shutdown activity(ies).
(8) Planned MSS activities and emissions of each air contaminant are authorized with normal emissions from this EPN.
(9) Emission limits per Special Condition 32.
(10) Emission limits identified in the permit issue date May 11, 2010.

Date: November 7, 2012