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 (4)
1-1-Barge	Barge Loading Fugitives	VOC	7.59	1.52
7-1-1	500 NSP Neut Standpipe	VOC	0.02	0.09
7-1-2	700 NSP Neut Standpipe	VOC	0.02	0.09
7-1-4	CR500A (Offspec.Reaction Material) Tank	VOC	0.02	0.01
7-1-5	CRY500B (Oxime Salt) Tank (9)	VOC	0.23	0.01
	CRY500B (Off Spec Reaction Material) Tank (9)	VOC	0.04	0.01
7-1-6	CRY500C (Oxime Salt) Tank (9)	VOC	0.23	0.01
	CRY500C (Off Spec Reaction Material) Tank (9)	VOC	0.04	0.01
7-1-8	S-300 Benzene Scrubber	VOC (including benzene)	5.00	0.21
		Benzene	5.00	0.21
7-1-9	D400 Slurry Settling Tank	VOC	0.03	<0.01
7-1-15	D508 Neut Separator Tank	VOC	0.01	<0.01
7-1-16	D509 Neut Circ Tank	VOC	0.07	<0.01
7-1-17	D511 Crude Tank	VOC	0.11	0.11
7-1-21	D523A Distillat'n Lights Tank	VOC	<0.01	<0.01
7-1-23	D525A Product Check Tank	VOC	0.62	0.03
7-1-25	D526L, D526M, D526P, D526Q Storage Tank Vent (9)	VOC	2.83	0.15
		VOC		0.03

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7-1-26	D529 Kettle Ovhds Tank	VOC	0.17	<0.01
7-1-27	D534 Kettle Feed Tank	VOC	0.58	0.14
7-1-28	D540 Jet H2O Storage Tank	VOC	<0.01	<0.01
7-1-29	D111 & D701A AnoneTanks	VOC	0.87	0.10
7-1-31	D705 Oxime Holdup Tank	VOC	0.90	0.08
7-1-32	D708 Neut Sptr Tank	VOC	0.01	<0.01
7-1-33	D709 Neut Circ Tank	VOC	0.07	<0.01
7-1-34	D711 Crude Storage Tank	VOC	0.19	0.19
7-1-36	D723A Dist Lights Tank	VOC	0.61	0.37
7-1-37	D724 Dist Heavies Tank	VOC	0.52	0.23
7-1-38	D725A Product Check Tank	VOC	0.49	0.04
7-1-40	D734 Dist Lights Tank	VOC	0.05	<0.01
7-1-41	D745B Poly Return Storage Tank	VOC	<0.01	<0.01
7-1-42	D745C Oxime Salt Storage Tank (9)	VOC	0.14	0.02
	D745C Crude Caprolactam Storage Tank (9)	VOC	0.15	0.02
7-1-43	D745D Oxime Salt Storage Tank (9)	VOC	0.06	0.01
	D745D Crude Caprolactam Storage Tank (9)	VOC	0.07	<0.01
7-1-45	D-909 Jet Water Storage Tank	VOC	<0.01	<0.01
7-1-46	Scrubber S400	PM	4.86	21.29
		PM_{10}	4.86	21.29
		$PM_{2.5}$	4.86	21.29
		VOC	4.98	21.81

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7-1-48	T909 Jet Vent	VOC	0.12	0.18
7-1-50	HW400-CR400 OHDS Receiver	VOC	0.01	0.05
7-1-51	HW500-CR500 OHDS Receiver	VOC	0.01	0.05
7-1-53	T504 Jet Water Receiver (HW504)	VOC	0.10	0.44
7-1-54	T506 Jet Water Receiver (HW505)	VOC	0.01	0.05
7-1-55	T705 Jet Water Receiver (HW705)	VOC	0.01	0.05
7-1-56	HW803 Jet Water Receiver	VOC	0.01	0.05
7-1-58	K500A Jet System	VOC	0.05	0.22
7-1-59	K500D Jet System	VOC	0.05	0.22
7-1-60	T504 Jet System	VOC	0.02	0.09
7-1-61	T506 Jet System	VOC	0.01	0.05
7-1-62	T706 Jet System	VOC	0.03	0.14
7-1-63	T707 Jet System	VOC	0.02	0.09
7-1-65	T907 Jet System	VOC	0.01	0.05
7-1-66	Capro 1 Process Fugitives (5)	VOC (including benzene)	0.42	1.82
		Benzene	0.35	1.50
		NH_3	0.03	0.15
7-1-71/7-1-72	Capro 1 Rail and Truck Loading	VOC	4.84	0.10
7-1-73	SO_x Scrubber S500	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	0.60	0.41

Emission Sources - Maximum Allowable Emission Rates

		PM_{10}	<0.01	<0.01
		$PM_{2.5}$	<0.01	<0.01
		VOC	<0.01	<0.01
7-1-75	Kettle Dump	VOC	0.54	0.04
7-1-80	D600 Tank	VOC	1.26	0.15
7-1-90	Cooling Tower CT-700 (5)	VOC	2.10	9.20
		PM	0.90	3.95
		PM_{10}	0.41	1.78
		$PM_{2.5}$	0.05	0.20
7-1-91	D713C Extract Storage Tank	VOC	0.14	<0.01
7-1-101	D409 Neutralization Circulation Tank	VOC	0.07	0.02
7-1-115	D704A Tank	VOC	0.08	<0.01
7-1-116	D704B Tank	VOC	0.08	<0.01
7-2-2	Anone1 Process Fugitives (5)	NH_3	0.12	0.53
		VOC	1.41	6.19
7-2-3/7-2-4	Anone 1 Truck/Railcar Loading	VOC	10.68	1.24
7-2-6	BR360 Burner	CO	0.36	1.56
		NO_x	0.42	1.85
		PM	0.03	0.14
		PM_{10}	0.03	0.14
		$PM_{2.5}$	0.03	0.14
		SO_2	0.01	0.01
		VOC	0.02	0.10

Emission Sources - Maximum Allowable Emission Rates

7-2-7	BR370 Burner	CO	0.36	1.56
		NO_x	0.42	1.85
		PM	0.03	0.14
		PM_{10}	0.03	0.14
		$PM_{2.5}$	0.03	0.14
		SO_2	0.01	0.01
		VOC	0.02	0.10
7-2-9	D17 Tank	VOC	1.64	0.52
7-2-11	D21A Tech Anol Feed Tank	VOC	0.01	0.02
7-2-12	D21B Tech Anol Storage Tank	VOC	0.01	0.02
7-2-13	D28A Tank	VOC	2.49	0.09
7-2-14	D30B Dehydro Feed Tank	VOC	0.15	0.02
7-2-16, 7-2-17, 7-2-19, 7-2-22	D30C, D33A, D33B, D34B, D61 Storage Tanks	VOC	5.99	1.35
7-2-18	D34A Cyclohexanone Tank	VOC	5.23	0.30
7-2-21	D56 Conc Catalyst Tank	VOC	1.54	0.01
7-2-24	D113 Tank	VOC	0.95	0.30
7-2-25	D189 Dehydro Feed Tank	VOC	16.19	1.79
7-2-27	D2A Dilute Catalyst Tank	VOC	0.80	0.01
7-2-101	Dehydrogenation Vent	VOC	18.94	0.45
9-1-24	D60A Oxidation Product Storage Tank	VOC	0.35	0.13
	D60A KA Oil Storage Tank	VOC	0.32	0.13
9-1-25	D60B Cyclohexane IFR Storage Tank	VOC	1.04	1.16
9-1-26	D60C Cyclohexane IFR Storage Tank	VOC	1.04	

Emission Sources - Maximum Allowable Emission Rates

9-1-27	D900 Conc Acid Water Tank	Organic Acids	0.26	1.13
		VOC (not including organic acids)	0.77	3.38
9-1-29	D193B IFR Storage Tank	VOC	0.54	0.05
11-1-2	R170 Catalytic Incinerator (8)	CO	23.78	85.86
		NO_x	0.38	1.49
		PM	0.01	0.03
		PM_{10}	0.01	0.03
		$PM_{2.5}$	0.01	0.03
		VOC	28.29	108.20
11-1-3	BR300 Dehydro Burner	CO	0.36	1.56
		NO_x	0.42	1.85
		PM	0.03	0.14
		PM_{10}	0.03	0.14
		$PM_{2.5}$	0.03	0.14
		SO_2	0.01	0.01
		VOC	0.02	0.10
11-1-4	BR310 Dehydro Burner	CO	0.36	1.56
		NO_x	0.42	1.85
		PM	0.03	0.14
		PM_{10}	0.03	0.14
		$PM_{2.5}$	0.03	0.14
		SO_2	0.01	0.01
		VOC	0.02	0.10
11-1-5	BR320 Dehydro Burner	CO	0.36	1.56
		NO_x	0.42	1.85

Emission Sources - Maximum Allowable Emission Rates

		PM	0.03	0.14
		PM_{10}	0.03	0.14
		$PM_{2.5}$	0.03	0.14
		SO_2	0.01	0.01
		VOC	0.02	0.10
11-1-6	BR330 Dehydro Burner	CO	0.36	1.56
		NO_x	0.42	1.85
		PM	0.03	0.14
		PM_{10}	0.03	0.14
		$PM_{2.5}$	0.03	0.14
		SO_2	0.01	0.01
		VOC	0.02	0.10
11-1-23	D-404B Distillation Heavies Storage Tank	VOC	0.25	0.05
11-1-25	D114 Conc Catalyst Tank	VOC	1.55	0.01
11-1-26	D116 Dilute Catalyst Tank	VOC	1.95	0.03
11-1-40	D289 Tank	VOC	0.17	0.01
11-1-43	BR340 Dehydro Burner	CO	0.64	2.81
		NO_x	0.76	3.34
		PM	0.06	0.25
		PM_{10}	0.06	0.25
		$PM_{2.5}$	0.06	0.25
		SO_2	0.01	0.02
		VOC	0.04	0.18
11-1-47	Anone2 Process Fugitives (5)	VOC	2.91	12.75
11-1-49	Anone2 Process Fugitives (5)	NH_3	0.17	0.74

Emission Sources - Maximum Allowable Emission Rates

11-1-50/11-1-51	Railcar and Truck Loading Losses	VOC	8.24	0.30
11-1-91	Cooling Tower CT-1100 (5)	VOC	0.63	2.76
		PM	0.27	1.18
		PM_{10}	0.12	0.53
		$PM_{2.5}$	0.01	0.06
11-1-100	Vapor Combustor R180	CO	37.44	13.11
		NO_x	14.91	4.50
		PM	0.60	0.21
		PM_{10}	0.60	0.21
		$PM_{2.5}$	0.60	0.21
		SO_2	0.05	0.02
		VOC	0.89	0.31
11-1-101	Dehydrogenation Vent	VOC	1.44	0.50
11-1-104	Anone 2 Low Pressure Vents	CO	140.00	1.60
		VOC	278.31	3.93
12-1-1	Vent Gas Flare (FL-280)	VOC	0.01	0.01
		CO	2.18	8.16
		NO_x	220.25	278.84
12-1-2	Burner Flare 1 (FL-170B)	CO	51.97	38.52
		NO (6)	771.43	31.10
		NO_x	11.23	4.60
		VOC	0.06	0.05
12-1-29	Catalyst Bldg Jet	PM	0.01	0.01
		PM_{10}	0.01	0.01
		$PM_{2.5}$	0.01	0.01

Emission Sources - Maximum Allowable Emission Rates

12-1-30	Scrubber Vent (T-350)	PM	0.11	0.02
		PM_{10}	0.11	0.02
		$PM_{2.5}$	0.11	0.02
12-1-31	Catalyst Oven Vent (OV-300A)	PM	0.01	0.01
		PM_{10}	0.01	0.01
		$PM_{2.5}$	0.01	0.01
12-1-33	Catalyst Oven Vent (OV-300C)	PM	0.01	0.01
		PM_{10}	0.01	0.01
		$PM_{2.5}$	0.01	0.01
12-1-35	Catalyst Oven Vent (OV-300E)	PM	0.01	0.01
		PM_{10}	0.01	0.01
		$PM_{2.5}$	0.01	0.01
12-1-44	Catalyst Transfer Station	PM	1.56	0.25
		PM_{10}	1.56	0.25
		$PM_{2.5}$	1.56	0.25
12-1-45	HA Process Fugitives (5)	NH_3	0.56	2.47
		NO_x	0.03	0.11
		H_2SO_4	0.03	0.13
12-1-46	Ammonia Flare (FL-241)	CO	22.51	6.04
		NH_3	25.50	0.20
		NO_x	37.13	0.98
		VOC	0.01	0.01

Emission Sources - Maximum Allowable Emission Rates

12-1-48	Burner Flare 2 (FL-171)	CO	62.33	52.03
		NO (6)	1207.87	31.10
		NO_x	15.55	6.17
		VOC	0.08	0.06
12-1-49	Nitric Acid Loading and Storage Tank	Nitric Acid	0.76	0.67
12-1-50	HA 2 Nitric Oxide Fugitives	NO	1.53	6.71
12-1-54	HA 2 HNO_2/HNO_3 Fugitives (5)	HNO_2/HNO_3	0.14	0.63
12-1-60	Anone 2: D244A/B Tank	VOC	1.41	1.87
12-2-4	Cooling Tower CT-20 (5)	VOC	1.55	6.81
		PM	0.54	2.37
		PM_{10}	0.24	1.07
		$PM_{2.5}$	0.03	0.12
12-2-49/12-2-54	D1402 Deepwell Tank	VOC	0.06	0.03
	D1401 Deepwell Tank		0.06	
12-2-50	D1403 Deepwell Tank	VOC	0.06	<0.01
12-2-53	D1424 Deepwell Tank	VOC	0.02	<0.01
12-2-55	Deepwell Filter Press	VOC	0.56	0.11
14-1-1	Ammonium Sulfate Loading	PM	0.60	0.56
		PM_{10}	<0.01	<0.01
		$PM_{2.5}$	<0.01	<0.01
		VOC	<0.01	<0.01
14-1-9	Cooling Tower CT-30 (5)	VOC	0.84	3.68
		PM	0.72	3.16
		PM_{10}	0.50	2.21
		$PM_{2.5}$	0.18	0.79
14-1-10	Product Storage	VOC	0.85	0.39

Emission Sources - Maximum Allowable Emission Rates

	Tanks **(**D344A, D344B, D344C, D344D)			
14-1-11	D204, D600 Tanks	VOC	0.01	0.05
14-1-13	D602B Tank	VOC	<0.01	<0.01
14-1-16	D711 Tank	VOC	0.02	<0.01
14-1-20	Hot Well Tank (HW410)	VOC	0.25	1.10
14-1-21	Hot Well Tank (HW430)	VOC	0.02	0.09
14-1-22	Hot Well Tank (HW600)	VOC	0.01	0.05
14-1-23	Hot Well Tank (HW720)	VOC	0.01	0.05
14-1-27	D205 Crude Lactam Storage Tank	VOC	0.25	0.18
14-1-29	D300A Tank	VOC	0.23	0.03
14-1-30	D300B Tank	VOC	0.86	0.16
14-1-31	D300C Tank	VOC	4.94	1.16
14-1-35	D343B Product Check Tank	VOC	0.90	0.07
14-1-36	D400 Tower Feed Tank	VOC	0.26	0.04
14-1-38	D500 Kettle Feed Tank	VOC	1.27	0.67
14-1-39	D523 Kettle Overheads Tank	VOC	0.07	0.02
14-1-40	D601 Mother Liquor Storage Tank	VOC	0.11	<0.01
14-1-41	D606 Mother Liquor Receiver Tank	VOC	<0.01	<0.01
14-1-44	D630B Water Storage Tank	VOC	<0.01	<0.01
14-1-45	D700 Ammonium Sulfate Solution StorageTank	VOC	0.23	0.06
	D700 Caprolactam Solution Storage Tank	VOC	0.15	<0.01
14-1-46	D701A Ammonium Sulfate Solution	VOC	0.08	0.02

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	Storage Tank			
	D701B Ammonium Sulfate Solution Storage Tank	VOC	0.08	0.02
	D701A Caprolactam Solution Storage Tank	VOC	0.10	0.02
	D701B Caprolactam Solution Storage Tank	VOC	0.10	0.02
14-1-47	D710 Mother Liquor Storage Tank	VOC	1.30	0.01
14-1-52-1	D203A Tank	VOC	0.06	<0.01
14-1-52-2	D203B Tank	VOC	0.06	<0.01
14-1-54	D-140/EV-140 Tank	VOC	<0.01	<0.01
14-1-56	T330 Jet System	VOC	0.39	1.14
14-1-57	T340A Jet System	VOC	0.02	0.09
14-1-58	T510 Jet System	VOC	0.02	0.09
14-1-60	T430 Jet System	VOC	0.02	0.09
14-1-61	K520 Jet System	VOC	0.05	0.22
14-1-64	EV-720 Jet System	VOC	0.01	0.05
14-1-68/14-1-83	Truck and Rail Loading	VOC	4.39	0.99
14-1-69	Scrubber S601	PM	5.14	15.00
		PM_{10}	5.14	15.00
		$PM_{2.5}$	5.14	15.00
		VOC	4.98	21.81
14-1-70	K530 Jet System	VOC	0.05	0.22

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14-1-73	Capro 2 Process Fugitives (5)	Benzene	0.25	1.09
		NH_3	0.01	0.04
		VOC (including benzene)	0.37	1.62
14-1-75	Benzene Scrubber S-260	Benzene	5.00	0.61
		VOC (including benzene)	5.00	0.61
14-1-76	SO_x 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	T1160/D121 Tank	VOC	1.53	0.10
14-1-86	Kettle Dump	VOC	0.54	0.02
14-1-90	D806A Tank	VOC (including benzene)	<0.01	<0.01
		Benzene	<0.01	<0.01
14-1-113	D702 Tank	VOC	0.10	0.10
14-1-114	D706 Tank	VOC	0.05	<0.01
14-1-115	D132, D1140 Tanks	VOC	2.56	0.13
14-1-116	Anone 2: D245 Tank	VOC	8.49	1.13
Planned Maintenance, Startup, and Shutdown (MSS) activities and emissions authorized below this heading				
AN1 MSS	Anone 1 MSS Emissions (7)	NH_3	2.30	0.47
		PM	0.07	0.01
		PM_{10}	0.07	0.01
		$PM_{2.5}$	0.07	0.01
		VOC	57.57	1.33
AN1 MSS	Anone 1 Shutdown Emissions (7)	NH_3	1.22	0.10

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		VOC	3.51	0.27
AN2 MSS	Anone 2 MSS Emissions (7)	NH_3	0.05	0.18
		PM	0.20	0.01
		PM_{10}	0.20	0.01
		$PM_{2.5}$	0.20	0.01
		VOC	217.50	6.30
AN2 MSS	Anone 2 Shutdown Emissions (7)	NH_3	0.92	0.09
		VOC	24.92	0.94
CP1 MSS	Caprolactam 1 MSS Emissions (7)	H_2SO_4	0.93	0.01
		NH_3	1.20	0.48
		VOC	32.58	3.08
CP1 MSS	Caprolactam 1 Shutdown Emissions (7)	NH_3	0.21	0.08
		VOC	47.04	2.14
CP2 MSS	Caprolactam 2 MSS Emissions (7)	H_2SO_4	0.93	0.01
		NH_3	1.20	0.49
		VOC	14.99	3.09
CP2 MSS	Caprolactam 2 Shutdown Emissions (7)	NH_3	0.20	0.08
		VOC	35.86	1.66
HA MSS	Hydroxylamine MSS Emissions (7)	NO	76.36	1.26
		NH_3	1.03	0.93
		PM	0.12	0.01
		PM_{10}	0.12	0.01
		$PM_{2.5}$	0.12	0.01
		VOC	0.16	0.17
HA MSS	Hydroxylamine Shutdown Emissions (7)	NO	309.89	4.96

Emission Sources - Maximum Allowable Emission Rates

7-1-8 MSS	Caprolactam 1 MSS Emissions	Benzene	5.00	0.38
9-1-24 MSS	D-60A IFR MSS (7)	VOC	2.37	0.14
9-1-25 MSS	D-60B IFR MSS (7)	VOC	10.11	0.03
9-1-26 MSS	D-60C IFR MSS (7)	VOC	10.11	0.03
9-1-29 MSS	D-193B IFR MSS (7)	VOC	6.65	0.15
11-1-100 MSS	Anone 1 Shutdown Emissions (7)	CO	39.99	0.96
		NO_x	10.04	0.24
		VOC	36.06	1.17
	Anone 2 Shutdown Emissions (7)	CO	66.45	2.81
		NO_x	16.69	0.71
		VOC	50.71	3.44
	Anone 2 Incinerator MSS (7)	CO	37.44	6.29
		NO_x	14.91	2.16
		VOC	1.06	0.18
12-1-1 MSS	Hydroxylamine MSS Emissions (7)	NO	211.21	22.18
	Hydroxylamine Shutdown Emissions (7)	CO	7.79	0.75
		NO_x	3.90	0.37
12-1-46 MSS	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
	Hydroxylamine Shutdown Emissions (7)	CO	11.04	2.12
		NH_3	2.08	0.40
		NO_x	2.33	0.45
		VOC	0.12	0.02

Emission Sources - Maximum Allowable Emission Rates

14-1-75 MSS	Caprolactam 2 MSS Emissions	Benzene	5.00	0.56

(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
HNO_2 - nitrous acid
HNO_3 - nitric acid
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 non-pilot/non-assist 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 activities.
(8) Planned MSS activities and emissions of each air contaminant are authorized with normal emissions from this EPN.
(9) Combined emission rate for both operating modes shall not exceed the higher of the two mode's emission rate in lbs/hr or in tons/yr.

Date: June 14, 2019