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

Emission	Source A	ir Contaminant	Emission Ra	ates *
Point No. (1)	Name (2)	Name (3)	lb/hr	TPY**
1-1-Barge	Capro Barge Loading Fugitives	Caprolactam	0.07	0.15
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 VOC	0.01 0.02	0.01 0.03
7-1-9	D400 Slurry Settling Dru	m PM	0.01	0.01
7-1-11	D504A Wash H20 Stg Tank	VOC	0.07	0.01
7-1-12	D504B Wash H20 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	1.00	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

Emission	Source	Air Contaminant	Emission	
Point No. (1)	Name (2)	Name (3)	lb/hr	TPY**
7-1-27	D534 Kettle Feed Tank	VOC	0.18	0.01
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	0.10	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)2SO ₄ Scrubber	PM VOC	4.86 4.98	21.29 21.81
7-1-48	T909 Jet Vent	VOC	0.02	0.09

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	<u>Emission</u> lb/hr	Rates *
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
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	0.10
7-1-59	K500D EJ507B Vent	VOC	0.02	0.10
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 (4)	Benzene NH₃ VOC	0.42 0.03 0.59	1.84 0.14 2.57

Emission	Source	Air Contaminant	Emissio	n Rates *
Point No. (1)	Name (2)	Name (3)	lb/hr	TPY**
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 NH₃ SO₂ VOC	0.14 0.05 3.30 0.64	0.63 0.21 14.47 1.77
7-1-74	Ammonium Sulfate Loading	PM ₁₀ VOC	0.23 0.04	0.34 0.06
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 (4)	VOC	2.10	9.20
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 (4)	NH₃ VOC	0.06 1.52	0.24 6.67
7-2-3/7-2-4	Anone 1 Truck/Railcar Loading	y VOC	16.72	1.20

Emission	Source	Air Contaminant	Emission	Rates *
Point No. (1)	Name (2)	Name (3)	lb/hr	TPY**
7-2-6	BR360 Burner	CO NO_x PM_{10} SO_2 VOC	0.36 0.42 0.03 0.01 0.02	1.56 1.85 0.14 0.01 0.10
7-2-7	BR370 Burner	CO NO_x PM_{10} SO_2 VOC	0.36 0.42 0.03 0.01 0.02	1.56 1.85 0.14 0.01 0.10
7-2-8	D841 Dilute Acid Water Tank	Organic Acids	0.01	0.01
7-2-9	D17 Anolon Storage Tank	VOC	0.60	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
7-2-14	D30B Dehydro Feed Tank	VOC	0.20	0.02
7-2-16	D30C Cyclohexanol Tank	VOC	0.20	0.13
7-2-17	D33A/B Cyclohexanone Tanks	s VOC	8.49	0.73
7-2-18	D34A Cyclohexanone Tank	VOC	1.00	0.66
7-2-19	D34B Cyclohexanone Tank	VOC	1.00	0.66
7-2-21	D56 Conc Catalyst Tank	VOC	0.36	0.01
7-2-22	D61 Cyclohexanone Tank	VOC	4.24	0.18

Emission	Source	Air Contaminant	<u>Emissio</u>	n Rates *
Point No. (1)	Name (2)	Name (3)	lb/hr	TPY**
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 VOC	0.08 0.85	0.36 3.70
11-1-2	R170 Catalytic Incinerator (7)	CO NO_{x} PM_{10} VOC	17.78 0.03 0.01 28.29	75.86 0.13 0.03 108.22
11-1-3	BR300 Dehydro Burner	CO NO_x PM_{10} SO_2 VOC	0.36 0.42 0.03 0.01 0.02	1.56 1.85 0.14 0.01 0.10

Emission	Source	Air Contaminant	Emission	
Point No. (1)	Name (2)	Name (3)	lb/hr	TPY**
11-1-4	BR310 Dehydro Burner	CO NO_x PM_{10} SO_2 VOC	0.36 0.42 0.03 0.01 0.02	1.56 1.85 0.14 0.01 0.10
11-1-5	BR320 Dehydro Burner	CO NO_x PM_{10} SO_2 VOC	0.36 0.42 0.03 0.01 0.02	1.56 1.85 0.14 0.01 0.10
11-1-6	BR330 Dehydro Burner	CO NO_x PM_{10} SO_2 VOC	0.36 0.42 0.03 0.01 0.02	1.56 1.85 0.14 0.01 0.10
11-1-9	D156 Crude Anone Tank	VOC	4.30	2.09
11-1-21	D28 Co-product Storage	VOC	0.38	0.26
11-1-23	D-404B EP-323 Storage	VOC	0.06	0.20
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

Emission		Air Contaminant		n Rates *
Point No. (1)	Name (2)	Name (3)	lb/hr	TPY**
11-1-43	Dehydro Methane Burner BR340	CO NO_x PM_{10} SO_2 VOC	0.64 0.76 0.06 0.01 0.04	2.81 3.34 0.25 0.02 0.18
11-1-47	Process Fugitives (4)	VOC	4.79	21.00
11-1-49	Process Fugitives (4)	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 (4) VOC	0.63	2.76
11-1-100	Thermal Oxidizer R180	CO NO_{x} PM_{10} SO_{2} VOC	37.44 14.91 0.60 0.05 0.89	13.11 4.50 0.21 0.02 0.31
11-1-101	Dehydrogenation Vent	VOC	1.44	0.50
11-1-104	Anone 2 Low Pressure Vents	CO VOC	140.00 278.00	1.60 3.11
12-1-1	Vent Gas Flare	CO (9) NO _x (9)	0.02 121.51	0.10 532.20

Emission	Source	Air Contaminant		n Rates *
Point No. (1)	Name (2)	Name (3)	lb/hr	TPY**
		VOC CO (8) NO _x (8)	0.01 2.18 220.25	0.01 8.16 278.84
12-1-2	Burner Flare 1 FL-170B	CO (9) NO (9) NO _x (9) VOC (9) CO (8) NO (5)(8) NO _x (8) VOC (8)	4.37 756.00 2.19 0.09 36.96 771.43 9.48 0.04	19.13 (5) 9.58 0.39 38.52 31.10 4.60 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
12-1-45	HA 2 Ammonia Fugitive (4)	NH₃ NO H₂SO₄	0.56 6.00 0.03	2.46 10.00 0.13

Emission	Source	Air Contaminant	<u>Emissio</u>	n Rates *
Point No. (1)	Name (2)	Name (3)	lb/hr	TPY**
12-1-46	Ammonia Flare	CO (9)	0.28	1.24
		NH ₃ (9)	3.06	0.02
		NO _x (9)	27.57	0.85
		VOC (9)	0.01	0.03
		CO (8)	22.51	6.04
		NH ₃ (8)	25.50	0.20
		NO _x (8)	37.43	0.98
		VOC (8)	0.01	0.01
10 1 47	Corbon Rada	1 1 Trichlorootho	no 1.00	0.10
12-1-47	Carbon Beds	1, 1, Trichloroetha Carbon Tetrachlor		0.18
	Normal Emissions and (6)	VOC	ide 1.90 2.36	0.18 0.23
		VOC	2.30	0.23
12-1-48	Burner Flare 2 FL-171	CO (9)	5.80	25.37
		NO (9)	1172.00	(5)
		NO _x (9)	2.90	12.71
		VOC (9)	0.12	0.52
		CO (8)	53.00	52.03
		NO (5)(8)	1207.87	31.10
		NO _x (8)	14.47	6.17
		VOC (8)	0.06	0.06
10.1.10	Arrest A Children	A177 1 A 11	0.04	4.04
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	H_2SO_4	0.01	0.01
	Tank			
12-1-53	D-164B Dilute Sulfuric Acid	H_2SO_4	0.01	0.01
	Tank			

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	<u>Emission</u> lb/hr	Rates * TPY**
12-1-54	HA 2 HNO2/HNO3 Fugitives (4	l) HNO ₂ /HNO ₃	0.14	0.63
12-2-4	Cooling Tower CT-20 (4)	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
14-1-1	Ammonium Sulfate Loading	PM VOC	0.51 0.09	0.41 0.07
14-1-8	Lactam Separator	VOC	0.05	0.01
14-1-9	Cooling Tower CT-30 (4)	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

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	<u>Emission</u> lb/hr	Rates * TPY**
<u>. ee. (2)</u>	(=/	7.55	,	
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
14-1-27	Crude Lactam Storage	VOC	0.01	0.01
14-1-29	Extract Storage	VOC	0.01	0.01
14-1-30	Extract Storage	VOC	0.01	0.01
14-1-31	Extract Storage	VOC	0.01	0.01
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	0.01	0.01
14-1-46	Oxime Salt Storage	VOC	0.12	0.03

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	<u>Emission</u> lb/hr	Rates * TPY**
	•	•		
14-1-47	Mother Liquor Storage	VOC	0.01	0.01
14-1-52-01	D203A	VOC	0.01	0.01
14-1-52-02	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	0.20	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	0.10
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 VOC	5.14 4.98	15.00 21.81
14-1-70	Vacuum Jet	VOC	0.02	0.10
14-1-73	Capro 2 Process Fugitives (4)	Benzene NH₃ VOC	0.33 0.02 0.35	1.44 0.09 1.53
14-1-75	Benzene Crude Scrubber S-26	0 Benzene VOC	0.01 0.02	0.01 0.03
14-1-76	SO ₂ Scrubber S625	Benzene NH₃	0.25 0.03	1.10 0.12

Emission	Source	Air Contaminant	<u>Emission</u>	Emission Rates *	
Point No. (1)	Name (2)	Name (3)	lb/hr	TPY**	
		SO ₂ VOC	2.32 1.05	10.17 3.42	
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 maintenan this heading	ce, startup, and shutdown (MS	SS) activities and e	missions author	ized below	
AN1MSS	Anone 1 MSS Emissions (6)	NH_3 PM/PM_{10} VOC	2.30 0.07 57.57	0.47 0.01 1.33	
AN1MSS	Anone 1 Shutdown Emissions ((6) NH₃ VOC	1.22 3.51	0.10 0.27	
AN2MSS	Anone 2 MSS Emissions (6)	NH ₃ PM/PM ₁₀ VOC	0.05 0.20 217.50	0.18 0.01 6.30	
AN2MSS	Anone 2 Shutdown Emissions ((6) NH₃ VOC	0.92 24.92	0.09 0.94	
CP1MSS	Caprolactam 1 MSS Emissions	(6)H ₂ SO ₄ NH ₃ VOC	0.93 1.20 32.58	0.01 0.48 3.08	
CP1MSS	Caprolactam 1 Shutdown Emissions (6)	NH₃ VOC	0.21 47.04	0.08 2.14	
CP2MSS	Caprolactam 2 MSS Emissions	(6) H ₂ SO ₄ NH ₃ VOC	0.93 1.20 14.99	0.01 0.49 3.09	

Emission	Source	Air Contaminant	Emission Rates *	
Point No. (1)	Name (2)	Name (3)	lb/hr	TPY**
CP2MSS	Caprolactam 2 Shutdown	NH₃	0.20	0.08
G. <u>L</u> G	Emissions (6)	VOC	35.86	1.66
HAMSS	MSS Hydroxylamine MSS Emissions (6)NO		76.36	1.26
	,	NH ₃	1.84	0.93
		PM/PM ₁₀	0.12	0.01
		VOC	0.12	0.13
HAMSS	Hydroxylamine Shutdown Emissions (6)	NO	309.89	4.96
7-1-8	Caprolactam 1 MSS Emissions (6) Benzene		0.18	0.04
7-1-8	Caprolactam 1 Shutdown Emissions (6)	Benzene	0.01	0.01
9-1-24	D-60A IFR MSS (6)	VOC	2.37	0.14
9-1-25	D-60B IFR MSS (6)	VOC	10.11	0.03
9-1-26	D-60C IFR MSS (6)	VOC	10.11	0.03
9-1-28	D-193B IFR MSS (6)	VOC	6.65	0.15
11-1-100	Anone 1 Shutdown Emissions	(6) CO	39.99	0.96
		NO _x	10.04	0.24
		VOC	36.06	1.17
11-1-100	Anone 2 Shutdown Emissions ((6) CO	66.45	2.81
11-1-100	Allone 2 Shataown Emissions (NO _x	16.69	0.71
		VOC	50.71	3.44
11-1-100	Anone 2 Incinerator MSS (6)	СО	37.44	6.29
		NO _x	14.91	2.16
		VOC	1.06	0.18

Emission	Source	Air Contaminant	Emission Rates *	
Point No. (1)	Name (2)	Name (3)	lb/hr	TPY**
•	•			
12-1-1	Hydroxylamine MSS Emissions (6)NO		211.21	22.18
12-1-1	Hydroxylamine Shutdown	CO	7.79	0.75
	Emissions (6)	NO_x	3.90	0.37
12-1-46	6 Hydroxylamine MSS Emissions (6)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	СО	11.04	2.12
	Émissions (6)	NH_3	2.08	0.40
	, ,	NO_x	2.33	0.45
		VOC	0.12	0.02
14-1-75	Caprolactam 2 MSS Emission	ns (6) Benzene	0.18	0.03
14-1-75	Caprolactam 2 Shutdown Emissions (6)	Benzene	0.01	0.01

- (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

H₂SO₄ - sulfuric acid

 NO_{\times} - total oxides of nitrogen. This does not include any NO emissions listed separately.

NH₃ - ammonia

NO - nitric oxide

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

 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.

SO₂ - sulfur dioxide

VOC - volatile organic compounds as defined in Title 30 Texas Administrative Code § 101.1, including benzene.

- (4) Emission rate is an estimate and compliance is demonstrated by meeting the requirements of the applicable special conditions and permit application representations.
- (5) 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.
- (6) Planned maintenance, startup, and shutdown activity(ies).
- (7) Planned MSS activities and emissions of each air contaminant are authorized with normal emissions from this EPN.
- (8) Emission limits per Special Condition 32.
- (9) Emission limits identified in the permit issue date May 11, 2010
- * Emission rates are based on and the facilities are limited by the following maximum operating schedule:

Hrs/day 24 Days/week 7 Weeks/year 52

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

Dated September 12, 2011