Emission Sources - Maximum Allowable Emission Rates

Permit Numbers 38754 and PSDTX324M14

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)
MSS Caps	MSS Caps	CO	2948.62	53.90
		H_2S	6.59	0.22
		NH_3	4.41	0.17
		NO_x	532.06	11.05
		PM	80.53	1.41
		PM_{10}	80.53	1.31
		$PM_{2.5}$	80.53	1.29
		SO_2	1,019.00	37.33
		VOC	729.30	44.83
		Exempt Solvents	1.76	0.60
1	Heater - Crude Heater (01-H-01)	CO	8.10	20.13
		NH_3	0.05	0.17
		NO_x	9.72	19.24
		PM	1.21	4.00
		PM_{10}	1.21	4.00
		$PM_{2.5}$	1.21	4.00
		SO_2	2.50	5.71
		VOC	0.87	2.90
131	Heater - Crude Preflash (01-H-02)	CO	0.62	2.71
		NH_3	<0.01	0.02
		NO_x	1.77	6.29
		PM	0.13	0.49
		PM_{10}	0.13	0.49
		$PM_{2.5}$	0.13	0.49

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		SO_2	0.27	0.64
		VOC	0.10	0.35
132	Heater - Crude Stabilizer (01-H-03)	CO	0.17	0.72
		NH_3	<0.01	<0.01
		NO_x	0.48	2.06
		PM	0.04	0.15
		PM_{10}	0.04	0.15
		$PM_{2.5}$	0.04	0.15
		SO_2	0.07	0.22
		VOC	0.03	0.11
74	Vacuum Heater	CO	4.99	16.77
		NH_3	0.03	0.14
		NO_x	5.98	26.21
		PM	0.74	3.26
		PM_{10}	0.74	3.26
		$PM_{2.5}$	0.74	3.26
		SO_2	1.37	4.13
		VOC	0.54	2.36
114	Heater - Desalter Heater (11-H-01)	CO (7)	5.00	19.71
		NH_3 (7)	0.03	0.12
		NO_x (7)	6.00	23.65
		PM (7)	0.75	2.94
		PM_{10} (7)	0.75	2.94
		$PM_{2.5}$ (7)	0.75	2.94
		SO_2 (7)	1.54	4.19
		VOC (7)	0.54	2.12
		CO (8)	5.00	17.26
		NH_3 (8)	0.03	0.11
		NO_x (8)	6.00	20.71

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		PM (8)	0.75	2.57
		PM_{10} (8)	0.75	2.57
		$PM_{2.5}$ (8)	0.75	2.57
		SO_2 (8)	1.54	3.67
		VOC (8)	0.54	1.86
		CO (9)	3.54	15.52
		NH_3 (9)	0.03	0.14
		NO_x (9)	3.96	17.34
		PM (9)	0.74	3.23
		PM_{10} (9)	0.74	3.23
		$PM_{2.5}$ (9)	0.74	3.23
		SO_2 (9)	1.52	4.60
		VOC (9)	0.53	2.34
		H_2S (9)	0.02	0.05
115	HDS Heaters	CO	8.08	32.91
		NH_3	0.05	0.22
		NO_x	9.70	42.07
		PM	1.20	5.22
		PM_{10}	1.20	5.22
		$PM_{2.5}$	1.20	5.22
		SO_2	2.49	7.45
		VOC	0.87	3.78
116	Heater - HDS Pre-Heater (12-H-02)	CO	0.31	1.10
		NH_3	<0.01	0.02
		NO_x	2.36	8.28
		PM	0.15	0.51
		PM_{10}	0.15	0.51
		$PM_{2.5}$	0.15	0.51
		SO_2	0.30	0.73

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		VOC	0.11	0.37
118	Hydrogen Reformer Heater	CO	58.51	220.73
		NH_3	0.37	1.52
		NO_x	70.21	284.40
		PM	8.72	35.80
		PM_{10}	8.72	35.80
		$PM_{2.5}$	8.72	35.80
		SO_2	44.53	122.64
		VOC	9.95	25.91
153	Heater - HR Boiler (30-B-02)	CO	8.46	28.94
		NH_3	0.09	0.33
		NO_x	22.56	82.34
		PM	2.10	5.51
		PM_{10}	2.10	5.51
		$PM_{2.5}$	2.10	5.51
		SO_2	4.34	10.66
		VOC	1.52	3.99
30-B-04	Boiler 30-B-04	CO	19.84	48.14
		NH_3	2.41	5.86
		NO_x	8.25	20.02
		PM	4.10	9.95
		PM_{10}	4.10	9.95
		$PM_{2.5}$	4.10	9.95
		SO_2	8.65	14.47
		VOC	2.97	7.20
30-B-04MSS	Boiler 30-B-04	CO	198.55	3.57
		NO_x	55.00	0.99
117	Heater - Alky Frac. Reb. (31-H-01)	CO	2.51	8.83
		NH_3	0.05	0.17

Emission Sources - Maximum Allowable Emission Rates

		NO_x	5.64	19.86
		PM	1.17	4.11
		PM_{10}	1.17	4.11
		$PM_{2.5}$	1.17	4.11
		SO_2	2.41	5.86
		VOC	0.85	2.97
120	Heater - Butamer Heater (36-H-01)	CO	0.27	0.98
		NH_3	<0.01	0.02
		NO_x	2.00	4.30
		PM	0.12	0.26
		PM_{10}	0.12	0.26
		$PM_{2.5}$	0.12	0.26
		SO_2	0.26	0.41
		VOC	0.09	0.19
162	Oleflex Heater	CO	19.45	69.49
		NH_3	0.12	0.49
		NO_x	23.34	65.75
		PM	2.90	11.62
		PM_{10}	2.90	11.62
		$PM_{2.5}$	2.90	11.62
		SO_2	5.99	16.57
		VOC	2.10	8.41
119	Heater - Sulften Heater (46-H-01)	CO	0.35	1.49
		NH_3	0.01	0.03
		NO_x	2.62	5.21
		PM	0.16	0.32
		PM_{10}	0.16	0.32
		$PM_{2.5}$	0.16	0.32
		SO_2	0.34	0.63

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		VOC	0.12	0.24
150	HCU Heater	CO	6.10	24.38
		NH_3	0.06	0.26
		NO_x	12.19	48.76
		PM	1.51	6.06
		PM_{10}	1.51	6.06
		$PM_{2.5}$	1.51	6.06
		SO_2	3.13	8.63
		VOC	1.10	4.38
151	Heater - NHU Heater (48-H-01)	CO	1.06	3.82
		NH_3	0.01	0.04
		NO_x	3.52	12.72
		PM	0.26	0.95
		PM_{10}	0.26	0.95
		$PM_{2.5}$	0.26	0.95
		SO_2	0.54	1.35
		VOC	0.19	0.69
152	CRU Heater	CO	16.85	57.02
		NH_3	0.18	0.60
		NO_x	39.31	133.06
		PM	4.18	14.16
		PM_{10}	4.18	14.16
		$PM_{2.5}$	4.18	14.16
		SO_2	9.80	22.69
		VOC	3.03	10.25
172	Heater - RSU Heater (49-H-71)	CO	3.30	12.72
		NH_3	0.02	0.08
		NO_x	3.96	15.26
		PM	0.49	1.90

Emission Sources - Maximum Allowable Emission Rates

		PM_{10}	0.49	1.90
		$PM_{2.5}$	0.49	1.90
		SO_2	1.02	2.70
		VOC	0.36	1.37
49-H-90	Heater - C7 Splitter Reb. (49-H-90)	CO	5.32	16.82
		NH_3	0.03	0.13
		NO_x	4.25	15.46
		PM	0.79	3.01
		PM_{10}	0.79	3.01
		$PM_{2.5}$	0.79	3.01
		SO_2	1.64	4.29
		VOC	0.57	2.18
195	Heater - GDU Charge Heater (52-H-01)	CO	13.65	34.29
		NH_3	0.05	0.20
		NO_x	5.80	14.69
		PM	1.23	4.61
		PM_{10}	1.23	4.61
		$PM_{2.5}$	1.23	4.61
		SO_2	2.55	6.57
		VOC	0.89	3.34
1F	Crude Unit	VOC	See Subcap	See Subcap
2F	Vacuum Unit	H_2S	0.02	0.08
		VOC	See Subcap	See Subcap
4F	LEU Unit	VOC	See Subcap	See Subcap
11F	Desalter Unit	VOC	See Subcap	See Subcap
12F	HDS Unit	H_2S	0.14	0.62
		VOC	See Subcap	See Subcap
13F	H_2 Reformer	VOC	See Subcap	See Subcap
18F	LEU -2	VOC	See Subcap	See Subcap

Emission Sources - Maximum Allowable Emission Rates

20F	LRU	VOC	See Subcap	See Subcap
21/22F	HOC	H_2S	0.03	0.12
		VOC	See Subcap	See Subcap
30F	Boiler House	VOC	See Subcap	See Subcap
07F	#07 BUP Flare	VOC	See Subcap	See Subcap
31F	Alky Unit	H_2S	0.10	0.43
		HF	0.52	2.29
		VOC	See Subcap	See Subcap
36F	Butamer Unit	VOC	See Subcap	See Subcap
37F	Iso-Octene	VOC	See Subcap	See Subcap
38F	Oleflex Unit	VOC	See Subcap	See Subcap
46-24F	SULF-10 Fugitives (5)	H_2S	0.10	0.43
		VOC	See Subcap	See Subcap
41F	SRU Unit Fugitives (5)	H_2S	0.02	0.09
		VOC	See Subcap	See Subcap
47F	HCU Unit	H_2S	0.15	0.67
		VOC	See Subcap	See Subcap
47PSA	PSA Unit	VOC	See Subcap	See Subcap
48F	NHT Unit	H_2S	0.01	0.06
		VOC	See Subcap	See Subcap
49F	CRU Unit	VOC	See Subcap	See Subcap
175	XFU/RFU/C7Split Unit	VOC	See Subcap	See Subcap
52F	GDU Unit	VOC	See Subcap	See Subcap
DOCKS	DK-Docks	VOC	See Subcap	See Subcap
08F	#08FLR/Day Tanks	VOC	See Subcap	See Subcap
LPG STGF	LPG STORAGE	VOC	See Subcap	See Subcap
MVRUF	MVRU	VOC	See Subcap	See Subcap
TERM-F	#TM-Terminal	VOC	See Subcap	See Subcap
TRKRACKFUG	TRUCK RACK (5)	VOC	See Subcap	See Subcap

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83F	Wastewater Treatment Plant	VOC	See Subcap	See Subcap
54F	Selective Hydrogenation Unit	VOC	See Subcap	See Subcap
42F	Sour Water Stripper	H_2S	<0.01	0.02
		VOC	See Subcap	See Subcap
168	Oleflex CCR	Cl_2	<0.01	0.04
		H_2SO_4	<0.01	0.01
		HCl	0.06	0.28
		SO_2	0.04	0.19
69	Tank - 9	VOC	3.10	0.49
122	Cooling Tower - HOC	PM	17.71	65.86
		PM_{10}	16.82	62.58
		$PM_{2.5}$	2.63	9.78
		VOC	5.67	21.09
123	Cooling Tower - Alky	PM	0.71	2.00
		PM_{10}	0.70	1.98
		$PM_{2.5}$	0.19	0.55
		VOC	1.26	3.55
167-CT	Cooling Tower - BUP	PM	4.52	19.26
		PM_{10}	4.30	18.33
		$PM_{2.5}$	0.67	2.88
		VOC	1.47	6.27
1CT	Cooling Tower - Crude	PM	0.34	1.13
		PM_{10}	0.34	1.11
		$PM_{2.5}$	0.06	0.21
		VOC	0.17	0.55
16-P-04	Engine - 16-P-04	CO	2.20	0.06
		NO_x	8.00	0.21
		PM	0.73	0.02
		PM_{10}	0.73	0.02

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		$PM_{2.5}$	0.73	0.02
		SO_2	0.68	0.02
		VOC	0.83	0.02
16-P-07	Engine - 16-P-07	CO	2.67	0.04
		NO_x	9.69	0.15
		PM	0.88	0.01
		PM_{10}	0.88	0.01
		$PM_{2.5}$	0.88	0.01
		SO_2	0.82	0.01
		VOC	1.01	0.02
16-P-11	Engine - 16-P-11	CO	0.80	0.02
		NO_x	3.32	0.09
		PM	0.11	<0.01
		PM_{10}	0.11	<0.01
		$PM_{2.5}$	0.11	<0.01
		SO_2	0.10	<0.01
		VOC	0.12	<0.01
16-P-12	Engine - 16-P-12	CO	0.80	0.02
		NO_x	3.32	0.09
		PM	0.11	<0.01
		PM_{10}	0.11	<0.01
		$PM_{2.5}$	0.11	<0.01
		SO_2	0.10	<0.01
		VOC	0.12	<0.01
16-P-13	Engine - 16-P-13	CO	0.80	0.02
		NO_x	3.32	0.09
		PM	0.11	<0.01
		PM_{10}	0.11	<0.01
		$PM_{2.5}$	0.11	<0.01

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		SO_2	0.10	<0.01
		VOC	0.12	<0.01
16-P-14	Engine - 16-P-14	CO	0.80	0.02
		NO_x	3.32	0.09
		PM	0.11	<0.01
		PM_{10}	0.11	<0.01
		$PM_{2.5}$	0.11	<0.01
		SO_2	0.10	<0.01
		VOC	0.12	<0.01
126	Main Flare	CO	See Subcap	See Subcap
		H_2S	See Subcap	See Subcap
		NO_x	See Subcap	See Subcap
		SO_2	See Subcap	See Subcap
		VOC	See Subcap	See Subcap
158	Ground Flare	CO	See Subcap	See Subcap
		H_2S	See Subcap	See Subcap
		NO_x	See Subcap	See Subcap
		SO_2	See Subcap	See Subcap
		VOC	See Subcap	See Subcap
127	BUP Flare	CO	See Subcap	See Subcap
		H_2S	See Subcap	See Subcap
		NO_x	See Subcap	See Subcap
		SO_2	See Subcap	See Subcap
		VOC	See Subcap	See Subcap
135	Acid Gas Flare (pilot only)	CO	See Subcap	See Subcap
		H_2S	See Subcap	See Subcap
		NO_x	See Subcap	See Subcap
		SO_2	See Subcap	See Subcap
		VOC	See Subcap	See Subcap

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Various	Flares Subcap	CO	113.27	121.03
		H_2S	0.04	0.11
		NO_x	23.04	20.77
		SO_2	3.55	10.43
		VOC	291.17	63.51
31	Loading - Heavy Oil	VOC	14.96	4.72
SHIP FUG	Loading - Ships Fugitives (5)	VOC	237.46	91.74
VRU	Loading - MVRU	VOC	61.33	23.13
TRUCKFUG	Loading - Truck Fugitives (5)	VOC	11.88	13.48
TRUCKCOMB	Loading - Truck Combustor	CO	15.19	17.10
		NO_x	6.75	7.43
		SO_2	<0.01	0.02
		VOC	8.19	11.77
AE-49601A/B	AE-49601A/B Analyzer Vent	VOC	0.01	0.01
AE-49900A/B	AE-49900A/B Analyzer Vent	VOC	0.01	0.01
AE-49901A/B	AE-49901A/B Analyzer Vent	VOC	0.01	0.01
121 (6)	HOC Belco Scrubber	CO	889.96	1,470.33
		HCN	80.47	320.40
		H_2SO_4	49.00	214.62
		NO_x	356.20	473.81
		PM	120.32	527.00
		PM_{10}	120.32	527.00
		$PM_{2.5}$	120.32	527.00
		SO_2	203.53	420.09
		VOC	28.02	115.53
121 (6)	SRU Incinerators Cap	CO	220.75	678.85
		H_2S	5.82	18.73
		NO_x	54.64	239.31
		PM	24.72	98.38

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		PM_{10}	24.72	98.38
		$PM_{2.5}$	24.72	98.38
		SO_2	191.32	837.99
		VOC	0.96	3.46
121 (6)	Temporary SRU Stack	CO	10.04	7.23
		H_2S	0.047	0.03
		NO_x	1.233	0.72
		PM	1.205	0.87
		PM_{10}	1.205	0.87
		$PM_{2.5}$	1.205	0.87
		SO_2	13.816	9.95
Various	Fugitives Subcap (5)	VOC	101.17	443.11
155	CRU CCR	HCl	0.07	0.29
118	SMR Condenser Vent	VOC	3.64	15.94
21 BH	MAGNACAT Unit	PM	0.18	0.60
		PM_{10}	0.18	0.60
		$PM_{2.5}$	0.18	0.60
187	Tank 25	H_2S	0.02	0.04
		NH_3	<0.01	<0.01
		VOC	1.43	5.33
83-P-136A	Engine 83-P-136A-EN	CO	2.48	0.06
		NO_x	7.43	0.19
		PM	0.38	<0.01
		PM_{10}	0.38	<0.01
		$PM_{2.5}$	0.38	<0.01
		SO_2	0.88	0.02
		VOC	7.43	0.19
83-P-136B	Engine 83-P-136B-EN	CO	2.48	0.06
		NO_x	7.43	0.19

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		PM	0.38	<0.01
		PM_{10}	0.38	<0.01
		$PM_{2.5}$	0.38	<0.01
		SO_2	0.88	0.02
		VOC	7.43	0.19
WWTP-OWS	WW collection system	VOC	8.62	37.77
83-TK-26	Tank 26	VOC	0.12	0.45
83-TK-159	Tank 159	VOC	0.15	0.39
83-TK-160	Tank 160	VOC	0.15	0.39
83-V-97	Tank 97	VOC	0.18	0.40
83-V-58	Tank 58	VOC	0.11	0.44
83-V-59	Tank 59	VOC	0.11	0.44
83-TK-162	Tank 162	VOC	0.39	1.77
83-TK-155	Tank 155	VOC	0.39	1.77
124	API/DGF Combustor	CO	1.65	7.22
		NO_x	0.45	1.76
		SO_2	0.03	0.13
		VOC	2.94	12.88
83-TK-23	Equalization Tank	VOC	0.81	3.51
83-TK27	Bio Oxidation Reactor Tank	VOC	0.51	2.22
WWTP-AERB	Aeration Basin	VOC	0.25	1.09
WWTP-CLRF	Clarifier	VOC	<0.01	0.04
WWTP-SLB	Saline Basin	VOC	<0.01	<0.01
01-01	Crude/Vacuum Unit Pump Alley	VOC	<0.01	0.02
01-02	North Side of Vacuum Unit	VOC	<0.01	0.02
01-03	North Side of Vacuum Unit	VOC	<0.01	0.02
01-04	Northwest Side of Vacuum Unit - Main Sump	VOC	<0.01	0.03
03-01	N of Tanks 156/161	VOC	0.02	0.08
98-02	WP MSAT Rail Rack	VOC	0.02	0.08

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11-01	Desalter Pump Alley	VOC	<0.01	0.02
41-01	North of 43-TK-08 (Amine Tank)	VOC	<0.01	0.02
41-02	W of 41-V-05 (Acid Gas K.O. Drum)	VOC	<0.01	0.02
49-01	Northwest of XFU	VOC	<0.01	0.02
49-02	North Side of NHT (Unit 48)	VOC	<0.01	0.02
49-03	NHT (Unit 48) Pump Alley	VOC	<0.01	0.02
50-01	East of Tank 62	VOC	<0.01	0.02
52-01	NW of GDU MCC Room	VOC	<0.01	0.02
70-01	East of Tank 55	VOC	<0.01	0.02
70-02	Northwest of Tank 106	VOC	<0.01	0.02
70-03	West of Tank 94 (S&D Main Sump)	VOC	<0.01	0.03
72-01	East of Tank 111	VOC	<0.01	0.02
73-01	North of Tank 152 (Terminal 2A)	VOC	<0.01	0.02
73-02	Between TK 8 & TK 164 (Terminal 2)	VOC	<0.01	0.02
83-01	WWT (Hydroblast Pad)	VOC	0.02	0.07
83-02	WWT (Desalter Lift Station)	VOC	0.01	0.05
83-03	WWT (East of KOH Treater)	VOC	0.02	0.07
83-04	WWT (Northeast of Tank 159)	VOC	<0.01	0.02
83-05	WWT (North Lift Station)	VOC	<0.01	0.03
83-06	WWT (North of V-68)	VOC	<0.01	0.02
83-07	WWT (South of V-55)	VOC	<0.01	0.02
83-09	WWT (BSRP)	VOC	<0.01	0.02
83-10	WWT 83-V-99 (Diversion Box)	VOC	0.02	0.07
83-12	WWT 83-V-28 (SE of Catalyst Pad)	VOC	0.02	0.07
V-201	WP MSAT Rail Rack	VOC	0.51	2.23
124a	WP WWT API Combustor Backup	VOC	0.02	0.08
16-V-11	FWP 16-P-11 Diesel Tank	VOC	0.03	<0.01
16-V-12	FWP 16-P-12 Diesel Tank	VOC	0.03	<0.01
16-V-13	FWP 16-P-13 Diesel Tank	VOC	0.03	<0.01

Emission Sources - Maximum Allowable Emission Rates

16-V-14	FWP 16-P-14 Diesel Tank	VOC	0.03	<0.01
FWP-FUG	Firewater Pump Engine Fugitives	VOC	0.06	0.26

(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) Cl_2 - chlorine
CO - carbon monoxide
HCN - hydrogen cyanide
H_2S - hydrogen sulfide
H_2SO_4 - sulfuric acid
MSS - Maintenance, Startup and Shutdown
NH_3 - ammonia
NO_x - total oxides of nitrogen
PM - total particulate matter, suspended in the atmosphere, including PM_{10} and $PM_{2.5}$, as represented
PM_{10} - total particulate matter equal to or less than 10 microns in diameter, including $PM_{2.5}$, as represented
$PM_{2.5}$ - particulate matter equal to or less than 2.5 microns in diameter
SO_2 - sulfur dioxide
VOC - volatile organic compounds as defined in Title 30 Texas Administrative Code § 101.1
(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) EPN 121 is a shared stack being temporarily taken out of service for a planned turnaround. During this turnaround, the Source Name “Temporary SRU Stack” will be operational in place of EPN 121. The turnaround will occur approximately from January 15, 2018 to March 15, 2018, after which normal operation will resume and the Temporary SRU Stack will be permanently taken out of service.
(7) Prior to installation of ultra low-NO_x burners and within 12 months after issuance of the permit amendment dated February 13, 2018, the emission rates apply to the desalter heater (EPN 114), and the firing rate shall not exceed 90 MMBtu/hr on an annual basis (12-month rolling period). **(02/18)**
(8) Prior to installation of ultra low-NO_x burners and beginning 12 months after issuance of the permit amendment dated February 13, 2018, the emission rates apply to the desalter heater (EPN 114), and the firing rate shall not exceed 78.82 MMBtu/hr on an annual basis (12-month rolling period). **(02/18)**
(9) After installation of ultra low-NO_x burners, the emission rates apply to the desalter heater (EPN 114), and the firing rate shall not exceed 99 MMBtu/hr on an annual basis (12-month rolling period) and short term basis. **(02/18)**

Date: February 13, 2018