

Appendix A - Facility Emission Limits⁽¹⁾
TransGas Development Systems, L.L.C.
Permit Number R13-2791; Facility ID 059-00102

EP No.	Source Description	Type	Time	Pollutant	Limit 1			Annual Limits			Startup/Shutdown Limits		
					Limit 1	Unit	Avg. Period	Limit	Unit	Avg. Period	Limit	Unit	Avg. Period
Material Handling													
N/A	Material Transfer Points	PF	C	PM	4.92	pph	24-Hour	11.09	TPY	12 Mo. Roll			
				PM ₁₀	2.60	pph	24-Hour	5.39	TPY	12 Mo. Roll			
CR1	Coal Crusher	PF	C	PM	0.21	pph	24-Hour	0.91	TPY	12 Mo. Roll			
				PM ₁₀	0.10	pph	24-Hour	0.43	TPY	12 Mo. Roll			
CR7	Limestone Crusher	PF	C	PM	0.11	pph	24-Hour	0.09	TPY	12 Mo. Roll			
				PM ₁₀	0.05	pph	24-Hour	0.04	TPY	12 Mo. Roll			
VF1	Coal Feed Bunker	VF	C	PM	0.07	pph	24-Hour	0.30	TPY	12 Mo. Roll			
				PM ₁₀	0.04	pph	24-Hour	0.15	TPY	12 Mo. Roll			
VF2	Limestone Feed Bunker	VF	C	PM	0.19	pph	24-Hour	0.16	TPY	12 Mo. Roll			
				PM ₁₀	0.09	pph	24-Hour	0.08	TPY	12 Mo. Roll			
VF3	Coal Feed Bunker	VF	C	PM	0.07	pph	24-Hour	0.30	TPY	12 Mo. Roll			
				PM ₁₀	0.04	pph	24-Hour	0.15	TPY	12 Mo. Roll			
VF4	Limestone Feed Bunker	VF	C	PM	0.19	pph	24-Hour	0.16	TPY	12 Mo. Roll			
				PM ₁₀	0.09	pph	24-Hour	0.08	TPY	12 Mo. Roll			
VF5	Coal Feed Bunker	VF	C	PM	0.07	pph	24-Hour	0.30	TPY	12 Mo. Roll			
				PM ₁₀	0.04	pph	24-Hour	0.15	TPY	12 Mo. Roll			
VF6	Limestone Feed Bunker	VF	C	PM	0.19	pph	24-Hour	0.16	TPY	12 Mo. Roll			
				PM ₁₀	0.09	pph	24-Hour	0.08	TPY	12 Mo. Roll			
VF7	Coal Feed Bunker	VF	C	PM	0.07	pph	24-Hour	0.30	TPY	12 Mo. Roll			
				PM ₁₀	0.04	pph	24-Hour	0.15	TPY	12 Mo. Roll			
VF8	Limestone Feed Bunker	VF	C	PM	0.19	pph	24-Hour	0.16	TPY	12 Mo. Roll			
				PM ₁₀	0.09	pph	24-Hour	0.08	TPY	12 Mo. Roll			
VF9	Coal Feed Bunker	VF	C	PM	0.07	pph	24-Hour	0.30	TPY	12 Mo. Roll			
				PM ₁₀	0.04	pph	24-Hour	0.15	TPY	12 Mo. Roll			

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					Limit 1	Unit	Avg. Period	Limit	Unit	Avg. Period	Limit	Unit	Avg. Period
VF10	Limestone Feed Bunker	VF	C	PM	0.19	pph	24-Hour	0.16	TPY	12 Mo. Roll			
				PM ₁₀	0.09	pph	24-Hour	0.08	TPY	12 Mo. Roll			
n/a	Stockpiles	F	C	PM	0.36	pph	24-Hour	1.56	TPY	12 Mo. Roll			
				PM ₁₀	0.36	pph	24-Hour	1.56	TPY	12 Mo. Roll			
n/a	Haulroads	F	D	PM	5.37	pph	24-Hour	14.44	TPY	12 Mo. Roll			
				PM ₁₀	1.04	pph	24-Hour	2.81	TPY	12 Mo. Roll			
Gasification and Gas Cleanup													
A1/1	Roller Mill and Heater	BH	C, SU	NO _x	1.41	pph	24-Hour	6.32 ⁽²⁾	TPY	12 Mo. Roll	7.25	pph	10-Hour
				SO ₂		pph	3-Hour	0.06	TPY	12 Mo. Roll	3.00	pph	
				CO	1.14	pph	1-Hour	5.11 ⁽²⁾	TPY	12 Mo. Roll	5.38	pph	
				VOC	0.46	pph	8-Hour	2.00	TPY	12 Mo. Roll	0.46	pph	
				PM	0.56	pph	24-Hour	2.50 ⁽²⁾	TPY	12 Mo. Roll	2.55	pph	
				PM ₁₀	0.56	pph	24-Hour	2.45 ⁽²⁾	TPY	12 Mo. Roll	2.55	pph	
A1/2	Roller Mill and Heater	BH	C, SU	NO _x	1.41	pph	24-Hour	6.32 ⁽²⁾	TPY	12 Mo. Roll	7.25	pph	10-Hour
				SO ₂		pph	3-Hour	0.06	TPY	12 Mo. Roll	3.00	pph	
				CO	1.14	pph	1-Hour	5.11 ⁽²⁾	TPY	12 Mo. Roll	5.38	pph	
				VOC	0.46	pph	8-Hour	2.00	TPY	12 Mo. Roll	0.46	pph	
				PM	0.56	pph	24-Hour	2.50 ⁽²⁾	TPY	12 Mo. Roll	2.55	pph	
				PM ₁₀	0.56	pph	24-Hour	2.45 ⁽²⁾	TPY	12 Mo. Roll	2.55	pph	
A1/3	Roller Mill and Heater	BH	C, SU	NO _x	1.41	pph	24-Hour	6.32 ⁽²⁾	TPY	12 Mo. Roll	7.25	pph	10-Hour
				SO ₂		pph	3-Hour	0.06	TPY	12 Mo. Roll	3.00	pph	
				CO	1.14	pph	1-Hour	5.11 ⁽²⁾	TPY	12 Mo. Roll	5.38	pph	
				VOC	0.46	pph	8-Hour	2.00	TPY	12 Mo. Roll	0.46	pph	
				PM	0.56	pph	24-Hour	2.50 ⁽²⁾	TPY	12 Mo. Roll	2.55	pph	
				PM ₁₀	0.56	pph	24-Hour	2.45 ⁽²⁾	TPY	12 Mo. Roll	2.55	pph	

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					Limit 1	Unit	Avg. Period	Limit	Unit	Avg. Period	Limit	Unit	Avg. Period
A1/4	Roller Mill and Heater	BH	C, SU	NO _x	1.41	pph	24-Hour	6.32 ⁽²⁾	TPY	12 Mo. Roll	7.25	pph	10-Hour
				SO ₂		pph	3-Hour	0.06	TPY	12 Mo. Roll	3.00	pph	
				CO	1.14	pph	1-Hour	5.11 ⁽²⁾	TPY	12 Mo. Roll	5.38	pph	
				VOC	0.46	pph	8-Hour	2.00	TPY	12 Mo. Roll	0.46	pph	
				PM	0.56	pph	24-Hour	2.50 ⁽²⁾	TPY	12 Mo. Roll	2.55	pph	
				PM ₁₀	0.56	pph	24-Hour	2.45 ⁽²⁾	TPY	12 Mo. Roll	2.55	pph	
A1/5	Roller Mill and Heater	BH	C, SU	NO _x	1.41	pph	24-Hour	6.32 ⁽²⁾	TPY	12 Mo. Roll	7.25	pph	10-Hour
				SO ₂		pph	3-Hour	0.06	TPY	12 Mo. Roll	3.00	pph	
				CO	1.14	pph	1-Hour	5.11 ⁽²⁾	TPY	12 Mo. Roll	5.38	pph	
				VOC	0.46	pph	8-Hour	2.00	TPY	12 Mo. Roll	0.46	pph	
				PM	0.56	pph	24-Hour	2.50 ⁽²⁾	TPY	12 Mo. Roll	2.55	pph	
				PM ₁₀	0.56	pph	24-Hour	2.45 ⁽²⁾	TPY	12 Mo. Roll	2.55	pph	
A2/1	Start-Up Vessel 1	VF	SU	SO ₂				0.03	TPY	12 Mo. Roll	0.67	pph	3-Hour
				CO				0.10	TPY	12 Mo. Roll	1.11	pph	
				PM				0.10	TPY	12 Mo. Roll	1.11	pph	
				PM ₁₀				0.10	TPY	12 Mo. Roll	1.11	pph	
A2/2	Start-Up Vessel 2	VF	SU	SO ₂				0.03	TPY	12 Mo. Roll	0.67	pph	3-Hour
				CO				0.10	TPY	12 Mo. Roll	1.11	pph	
				PM				0.10	TPY	12 Mo. Roll	1.11	pph	
				PM ₁₀				0.10	TPY	12 Mo. Roll	1.11	pph	
B1/1	Lock Hoppers 1 through 6 Feed Dust Bunker 1	BH	C, SU	SO ₂	1.44	pph	3-Hour	6.28	TPY	12 Mo. Roll			
				CO	0.07	pph	1-Hour	0.28	TPY	12 Mo. Roll			
				PM	0.25	pph	24-Hour	1.10	TPY	12 Mo. Roll			
				PM ₁₀	0.25	pph	24-Hour	1.10	TPY	12 Mo. Roll			

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					Limit 1	Unit	Avg. Period	Limit	Unit	Avg. Period	Limit	Unit	Avg. Period
B1/2	Lock Hoppers 7 through 12 Feed Dust Bunker 2	BH	C, SU	SO ₂	1.44	pph	3-Hour	6.28	TPY	12 Mo. Roll			
				CO	0.07	pph	1-Hour	0.28	TPY	12 Mo. Roll			
				PM	0.25	pph	24-Hour	1.10	TPY	12 Mo. Roll			
				PM ₁₀	0.25	pph	24-Hour	1.10	TPY	12 Mo. Roll			
B2/1	Flared Emissions From Gasifier 1 During Startup	Flare	SU	NO _x				5.00	TPY	12 Mo. Roll	333.33	pph	1-Hour
				SO ₂				16.00	TPY	12 Mo. Roll	1,066.67	pph	
				CO				12.40	TPY	12 Mo. Roll	826.67	pph	
				VOC				0.01	TPY	12 Mo. Roll	0.09	pph	
				COS				0.30	TPY	12 Mo. Roll	9.90	pph	
				Ni(CO) ₄				0.02	TPY	12 Mo. Roll	1.24	pph	
				H ₂ S				0.70	TPY	12 Mo. Roll	51.30	pph	
				HCl				0.04	TPY	12 Mo. Roll	2.29	pph	
HCN				0.04	TPY	12 Mo. Roll	2.27	pph					
B2/2	Flared Emissions From Gasifier 2 During Startup	Flare	SU	NO _x				5.00	TPY	12 Mo. Roll	333.33	pph	1-Hour
				SO ₂				16.00	TPY	12 Mo. Roll	1,066.67	pph	
				CO				12.40	TPY	12 Mo. Roll	826.67	pph	
				VOC				0.01	TPY	12 Mo. Roll	0.09	pph	
				COS				0.30	TPY	12 Mo. Roll	9.90	pph	
				Ni(CO) ₄				0.02	TPY	12 Mo. Roll	1.24	pph	
				H ₂ S				0.70	TPY	12 Mo. Roll	51.30	pph	
				HCl				0.04	TPY	12 Mo. Roll	2.29	pph	
HCN				0.04	TPY	12 Mo. Roll	2.27	pph					

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					Limit 1	Unit	Avg. Period	Limit	Unit	Avg. Period	Limit	Unit	Avg. Period
C2	Flared Emissions From Acid Gas Removal System During Startup	Flare	SU	NO _x				0.96	TPY	12 Mo. Roll	957.60	pph	0.5-Hour
				SO ₂				0.17	TPY	12 Mo. Roll	168.10	pph	
				CO				2.40	TPY	12 Mo. Roll	2,375.00	pph	
				MeOH/ VOC				0.01	TPY	12 Mo. Roll	5.81	pph	
C1	CO Purification System Offgas	Stack	C, SU	SO ₂	11.56	pph	3-Hour	46.25	TPY	12 Mo. Roll			
				CO	0.50	pph	1-Hour	1.97	TPY	12 Mo. Roll			
Methanol and Methanol-to-Gasoline Plant													
E1	Start-Up/Regeneration Gas Heater Exhaust	Stack	D, SU	NO _x	4.01	pph	24-Hour	1.69	TPY	12 Mo. Roll			
				CO	1.93	pph	1-Hour	1.24	TPY	12 Mo. Roll			
				VOC	0.16	pph	8-Hour	0.07	TPY	12 Mo. Roll			
				PM	0.22	pph	24-Hour	0.10	TPY	12 Mo. Roll			
				PM ₁₀	0.22	pph	24-Hour	0.10	TPY	12 Mo. Roll			
E2	Start-Up/Reactivation Heater Exhaust	Stack	D, SU	NO _x	15.64	pph	24-Hour	4.40	TPY	12 Mo. Roll			
				CO	11.44	pph	1-Hour	3.22	TPY	12 Mo. Roll			
				VOC	0.65	pph	8-Hour	0.18	TPY	12 Mo. Roll			
				PM	0.89	pph	24-Hour	0.25	TPY	12 Mo. Roll			
				PM ₁₀	0.89	pph	24-Hour	0.25	TPY	12 Mo. Roll			
E3	HGT Reactor Charge Heater Exhaust	Stack	D, SU	NO _x	0.55	pph	24-Hour	1.65	TPY	12 Mo. Roll			
				CO	0.38	pph	1-Hour	1.20	TPY	12 Mo. Roll			
				VOC	0.02	pph	8-Hour	0.07	TPY	12 Mo. Roll			
				PM	0.03	pph	24-Hour	0.09	TPY	12 Mo. Roll			
				PM ₁₀	0.03	pph	24-Hour	0.09	TPY	12 Mo. Roll			
E5	Flaring of MTG Tail Gas	Flare	D	NO _x	21.30	pph	10-Hour	0.43	TPY	12 Mo. Roll			
				CO	51.88	pph	1-Hour	1.04	TPY	12 Mo. Roll			
				VOC	19.96	pph	8-Hour	0.40	TPY	12 Mo. Roll			

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					Limit 1	Unit	Avg. Period	Limit	Unit	Avg. Period	Limit	Unit	Avg. Period
Miscellaneous Sources													
CT	Cooling Tower	F	C	PM	7.71	pph	24-Hour	33.77	TPY	12 Mo. Roll			
				PM ₁₀	7.71	pph	24-Hour	33.77	TPY	12 Mo. Roll			
TK1	Gasoline Storage Tank 1	Stack	C	VOC	0.54	pph	8-Hour	2.35	TPY	12 Mo. Roll			
TK2	Gasoline Storage Tank 2	Stack	C	VOC	0.54	pph	8-Hour	2.35	TPY	12 Mo. Roll			
TK3	Gasoline Storage Tank 3	Stack	C	VOC	0.54	pph	8-Hour	2.35	TPY	12 Mo. Roll			
TK6	Methanol Storage Tank	Stack	C	MeOH/ VOC	0.24	pph	8-Hour	1.02	TPY	12 Mo. Roll			
TK7	Liquid Sulfur Storage Tank	Stack	C	H ₂ S	0.01	pph	1-Hour	0.03	TPY	12 Mo. Roll			
LR1	Loading Rack 1	F, Stack	D	VOC	2.62	pph	8-Hour	11.49	TPY	12 Mo. Roll			
LR2	Loading Rack 2												
F	Start-Up Steam Boiler	Stack	SU	NO _x	13.92	pph	24-Hour	2.67	TPY	12 Mo. Roll			
				SO ₂	0.31	pph	3-Hour	0.06	TPY	12 Mo. Roll			
				CO	10.11	pph	1-Hour	1.94	TPY	12 Mo. Roll			
				VOC	0.44	pph	8-Hour	0.09	TPY	12 Mo. Roll			
				PM	0.61	pph	24-Hour	0.12	TPY	12 Mo. Roll			
				PM ₁₀	0.61	pph	24-Hour	0.12	TPY	12 Mo. Roll			
G	Flare Pilot Light	Flare	C	NO _x	0.36	pph	24-Hour	1.58	TPY	12 Mo. Roll			
				SO ₂	0.01	pph	3-Hour	0.02	TPY	12 Mo. Roll			
				CO	0.35	pph	1-Hour	1.54	TPY	12 Mo. Roll			
				VOC	0.01	pph	8-Hour	0.01	TPY	12 Mo. Roll			
				PM	0.01	pph	24-Hour	0.01	TPY	12 Mo. Roll			
				PM ₁₀	0.01	pph	24-Hour	0.01	TPY	12 Mo. Roll			

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					Limit 1	Unit	Avg. Period	Limit	Unit	Avg. Period	Limit	Unit	Avg. Period
Equipment Leaks (Facility-Wide)													
n/a	Equipment Leaks	F	n/a	VOC				13.49	TPY	12 Mo. Roll			
				CO				6.73	TPY	12 Mo. Roll			
				SO ₂				0.45	TPY	12 Mo. Roll			
				MeOH				2.06	TPY	12 Mo. Roll			

- (1) For the purposes of this permit, all PM₁₀ emission limits are equal to PM_{2.5} emission limits.
(2) Annual limit accounts for contribution of maximum permitted start-up/shutdown emissions