In the absence of other information, theater-specific monitoring would be required to evaluate whether smoke/fog/haze machines are being used in accordance with the peak exposure guidelines. Ramboll Environ (formerly ENVIRON) developed Time-and-Distance (T&D) Guidelines as an alternative to conducting theater-and production-specific monitoring. These T&D Guidelines were developed under conservative use assumptions (e.g., no on-stage activities or props that would enhance dispersion, cue release at breathing height level). By following these T&D Guidelines, a production can use fog effects without having to conduct its own stage-specific testing, provided the machines are used in accordance with manufacturer specifications, are well maintained, and are functioning properly. These T&D Guidelines have been approved by Actors' Equity Association and the Broadway League for use in productions that use theatrical smoke, fog and haze.

The following tables describe the distance (with respect to the discharge point on the equipment) and length of time that concentrations exceeding the peak guidance levels would be expected to occur. Thus, by arranging the blocking and choreography such that an actor is not situated within the restricted areas during the times specified in these tables, actors should not receive exposures above the peak exposure guidelines.

The Time and Distance Guidelines are applicable for one single cue from one machine/fluid combination at a time. If a production wants to use more than one cue and/or more than one machine/fluid simultaneously, production-specific testing will be necessary using the Calibration Factors list and the Air-Sampling Protocol.

It should be noted that these T&D Guidelines may not be appropriate for all productions. Productions may want to use different configurations for positioning the machines (e.g., different heights), provide enhanced on-stage ventilation, or generate fog for a longer or shorter period of time. In addition, many productions may have other stage-specific conditions (e.g., on-stage activities and props that enhance dispersion) that would allow actors to be present in areas that are restricted under these T&D Guidelines but which, in fact, do not exceed the guidance levels. In those cases, production-specific monitoring would be recommended to determine whether peak exposure may occur.

For more information, please contact:

Alan Kao, Principal Ramboll Environ US Corporation 3 Carlisle Road, Suite 210 Westford, MA 01886 978.449.0324 akao@environcorp.com www.ramboll-environ.com

Disclaimer: These guidelines do not represent an endorsement of any equipment-fluid combination by Ramboll Environ. Please note that the use of fluids in machines other than those recommended by the manufacturer is subject to the equipment manufacturer's terms and conditions.



		INDEX STANCE GUIDELINES	
Manufacturer	Machine	Fluid	Page
American DJ	Fog Fury 3000	Froggy's Fog Backwood Bay Fluid	7
(ADJ)		Froggy's Fog Bog Fog Fluid	7
		Froggy's Fog Velocity Fluid	7
		Froggy's Fog Cryo Freeze Fluid	7
		Froggy's Fog Quick Blast Fluid	7
	Fog Storm 1700 HD	Froggy's Fog Velocity Fluid	7
		Froggy's Fog Cryo Freeze Fluid	7
		Froggy's Fog Quick Blast Fluid	7
Antari	1520 RGB Upshot	Froggy's Fog Quick Blast Fluid	8
AIIIdii	DNG-200	Froggy's Fog Cryo Freeze	9
	F-5/F-5D Fazer	Froggy's Fog Faze Haze Fluid	10
	ICE	Froggy's Fog Cryo Freeze	11
	M-5	Froggy's Fog Backwood Bay Fluid	12
		Froggy's Fog Amusement Park Fluid	12
		Froggy's Fog Bog Fog Fluid	12
		Froggy's Fog Velocity Fluid	12
		Froggy's Fog Cryo Freeze Fluid	12
		Froggy's Fog Quick Blast Fluid	12
	M-8	Froggy's Fog Backwood Bay Fluid	14
		Froggy's Fog Amusement Park Fluid	14
		Froggy's Fog Bog Fog Fluid	14
		Froggy's Fog Velocity Fluid	14
		Froggy's Fog Cryo Freeze Fluid	14
		Froggy's Fog Quick Blast Fluid	14
	M-10	Froggy's Fog Bog Fog Fluid	16
		Froggy's Fog Velocity Fluid	16
		Froggy's Fog Cryo Freeze Fluid	16
		Froggy's Fog Quick Blast Fluid	16
	X-515	Froggy's Fog Backwood Bay Fluid	17
		Froggy's Fog Amusement Park Fluid	17
		Froggy's Fog Bog Fog Fluid	17
		Froggy's Fog Velocity Fluid	17
		Froggy's Fog Cryo Freeze Fluid	17
		Froggy's Fog Quick Blast Fluid	17
	Z-350	Froggy's Fog Beam Splitter Fluid	19

INDEX TIME-AND-DISTANCE GUIDELINES								
Manufacturer	Machine	Fluid	Page					
Barco/High End	F-100	Atmosphere Cold Flow Formula	20					
Systems		Atmosphere HQ Formula	20					
		Atmosphere Stage Formula	20					
	FQ-100	Atmosphere HQ Formula	20					
		Atmosphere Stage Formula	20					
Blue Haze	1550	Froggy's Fog Backwood Bay	21					
Entertainment (BHE)		Froggy's Fog Amusement Park Fluid	21					
(BHE)		Froggy's Fog Bog Fog Fluid	21					
		Froggy's Fog Velocity Fluid	21					
		Froggy's Fog Cryo Freeze Fluid	21					
		Froggy's Fog Quick Blast Fluid	21					
Chauvet	1800 Flex	Froggy's Fog Backwood Bay	23					
		Froggy's Fog Amusement Park Fluid	23					
		Froggy's Fog Bog Fog Fluid	23					
		Froggy's Fog Velocity Fluid	23					
		Froggy's Fog Cryo Freeze Fluid	23					
		Froggy's Fog Quick Blast Fluid	23					
		Froggy's Fog Techno Fluid	23					
	AmHaze II	Froggy's Fog Faze Haze Fluid	25					
	Geyser	Froggy's Fog Quick Blast Fluid	26					
CITC	AquaMax	Organic Haze Fluid	27					
	Fantasy FX spray can	Fantasy FX Professional Haze	28					
	HazeMax	Vapor Haze Fluid	28					
ePuffer	D-1500 Electronic Cigar	e-Liquid	29					
FireBase	SG-1300	Froggy's Fog Training Smoke FR Fluid – Fire Rescue Formula	30					
		Froggy's Fog Training Smoke XD Fluid – Extreme Density	30					
		Froggy's Fog Training Smoke Q Fluid – Quick Dissipating	30					
	SG-2600	Froggy's Fog Training Smoke FR Fluid – Fire Rescue Formula	31					
		Froggy's Fog Training Smoke XD Fluid – Extreme Density	31					
	SG-M1500	Froggy's Fog Training Smoke FR Fluid – Fire Rescue Formula	32					
		Froggy's Fog Training Smoke XD Fluid – Extreme Density	32					



		NDEX TANCE GUIDELINES	
Manufacturer	Machine	Fluid	Page
		Froggy's Fog Training Smoke Q Fluid – Quick Dissipating	32
	SG-M1800	Froggy's Fog Training Smoke FR Fluid – Fire Rescue Formula	33
		Froggy's Fog Training Smoke XD Fluid – Extreme Density	33
		Froggy's Fog Training Smoke Q Fluid – Quick Dissipating	33
	SG-M3000	Froggy's Fog Training Smoke XD Fluid – Extreme Density	34
		Froggy's Fog Training Smoke Q Fluid – Quick Dissipating	34
hazebase	Base Classic	Froggy's Fog Backwood Bay Fluid	35
		Froggy's Fog Amusement Park Fluid	35
		Froggy's Fog Bog Fog Fluid	35
		Froggy's Fog Velocity Fluid	35
		Froggy's Fog Cryo Freeze Fluid	35
		Froggy's Fog Quick Blast Fluid	35
	Base High Power 220V	Froggy's Fog Backwood Bay Fluid	37
		Froggy's Fog Bog Fog Fluid	37
	Base Hazer Pro	Froggy's Fog Faze Haze Fluid	38
		base hazer liquid Fluid	38
Le Maitre	Opti Mist Ranger	Mini Mist Canister	39
	MVS	Froggy's Fog Neutronic Haze Fluid	39
	Neutron XS	Froggy's Fog Neutronic Haze Fluid	40
Look Solutions	Cryo-Fog	Cryo-Fog Fluid	41
	Power Tiny	Tiny-Fluid	41
	Tiny-Fogger/Tiny F07, Tiny-Compact/Tiny C07	Tiny-Fluid	42
	Tiny FX	Tiny-Fluid	42
	Tiny S	Tiny-Fluid	43
	Unique 2.1	Unique-Fluid	43
	Viper NT	Quick-Fog Fluid	44
	Viper NT	Regular-Fog Fluid	45
	Viper NT	Slow-Fog Fluid	46
Martin	K-1	Froggy's Fog K-razy Haze Fluid	47
	Magnum 2000	Froggy's Fog Backwood Bay Fluid	48
		Froggy's Fog Bog Fog Fluid	48



INDEX TIME-AND-DISTANCE GUIDELINES								
Manufacturer	Machine	Fluid	Page					
		Froggy's Fog Velocity Fluid	48					
		Froggy's Fog Cryo Freeze Fluid	48					
		Froggy's Fog Quick Blast Fluid	48					
	ZR-33	Froggy's Fog Velocity Fluid	50					
		Froggy's Fog Cryo Freeze Fluid	50					
		Froggy's Fog Quick Blast Fluid	50					
	ZR-44	Froggy's Fog Backwood Bay Fluid	51					
		Froggy's Fog Bog Fog Fluid	51					
		Froggy's Fog Velocity Fluid	51					
		Froggy's Fog Cryo Freeze Fluid	51					
		Froggy's Fog Quick Blast Fluid	51					
MDG Fog	Atmosphere APS	MDG Neutral Fluid	53					
Generators	MAX 3000 APS	MDG Neutral Fluid	53					
	Mini Max	MDG Dense Fluid	53					
New Rule FX	Electronic Actor Cigarette Prop	Cartridge Fluid	54					
Pure Smoke	Electronic Cigarette	Electronic Cigarette Flavors	55					
Reel EFX	DF-50	Diffusion Fluid	56					
		Froggy's Fog DaFiddy Fluid – Oil Based Haze	56					
Robe	Fog 1550 FT	Froggy's Fog Backwood Bay Fluid	57					
		Froggy's Fog Amusement Park Fluid	57					
		Froggy's Fog Bog Fog Fluid	57					
		Froggy's Fog Velocity Fluid	57					
		Froggy's Fog Cryo Freeze Fluid	57					
		Froggy's Fog Quick Blast Fluid	57					
Rosco	1500 / 1600	Clear Fog Fluid	59					
Laboratories		Rosco Fog Fluid	59					
		Light Fog Fluid	59					
		Stage & Studio Fluid	59					
	1750	Rosco Fog Fluid	60					
		Stage & Studio Fluid	60					
	Alpha 900	Rosco Fog Fluid	61					
		Stage & Studio Fluid	61					
	Delta 3000	Clear Fog Fluid	62					
		Rosco Fog Fluid	62					
		Light Fog Fluid	62					

		NDEX TANCE GUIDELINES	
Manufacturer	Machine	Fluid	Page
		Stage & Studio Fluid	62
	Delta Hazer	Delta Hazer Fluid	63
	Mini-V	Rosco Fog Fluid	63
		Stage & Studio Fluid	64
	PF-1000	Rosco Fog Fluid	64
		Stage & Studio Fluid	64
	V-Hazer	V-Hazer Fluid	65
	Vapour	Rosco Fog Fluid	66
		Stage & Studio Fluid	67
	Vapour Plus	Rosco Fog Fluid	68
		Stage & Studio Fluid	69
Smoke In Style	Electronic Pipe Prop	FeelLife E-Liquid	70
Ultratec Special	G100	Extra Quick Dissipating Fluid	71
Effects		Quick Dissipating Fluid	71
		Director's Choice Fluid	71
	G150	Extra Quick Dissipating Fluid	71
		Molecular Fog Fluid	71
		Quick Dissipating Fluid	71
		Director's Choice Fluid	71
	G3000	Froggy's Fog Backwood Bay	72
		Froggy's Fog Amusement Park Fluid	72
		Froggy's Fog Bog Fog	72
		Froggy's Fog Velocity	72
		Froggy's Fog Cryo Freeze	72
		Froggy's Fog Quick Blast	72
	LSG MKII-PFI 9D	Molecular Fog Fluid	74
	Radiance Hazer	Neutron/Luminous 7 Haze Fluid	75
		Froggy's Fog Neutronic Haze Fluid	75



AMERICAN DJ SUPPLY, INC.

TIME-AND-DISTANCE GUIDELINES Fog Fury 3000											
Fluid	Machine	Release Duration		sec) After \ low Guida							
	Setting	(sec)	5 ft	10 ft	15 ft	20 ft	25 ft				
Froggy's Fog	Full	5	50	40	40	40	30				
Backwood Bay Fluid	Full	15	50	40	40	40	30				
Froggy's Fog Bog Fog	Full	5	80	60	40	0	0				
Fluid	Full	15	130	130	130	40	30				
Froggy's Fog Velocity	Full	5	20	20	0	0	0				
Fluid	Full	15	30	30	30	0	0				
Froggy's Fog Cryo	Full	5	20	20	0	0	0				
Freeze Fluid	Full	15	30	30	30	0	0				
Froggy's Fog Quick	Full	5	20	20	0	0	0				
Blast Fluid	Full	15	30	30	30	0	0				

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Bog Fog/K-razy Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke FR, Velocity/Cryo Freeze/Quick Blast/Training Smoke Q, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice 2009 Formula, Light Fog, prepared by ENVIRON International Corporation for Froggy's Fog, November 2014.</u>

TIME-AND-DISTANCE GUIDELINES Fog Storm 1700 HD with Froggy's Fog Velocity Fluid									
Release Time (in sec) After Which Air Concentrations Are Be Fluid Duration Guidance Level (40 mg/m³)									
	(secs)	Machine Setting	5 ft	10 ft	15 ft	20 ft	25 ft		
Fraggy/a Fag Valacity	5	Full	20	10	10	0	0		
Froggy's Fog Velocity Fluid	15	Full	20	20	20	20	0		
Fluid	30*	Full	20	20	20	20	0		
Fraggy / a Fag Cry / a	5	Full	20	10	10	0	0		
Froggy's Fog Cryo Freeze Fluid	15	Full	20	20	20	20	0		
Freeze Fluid	30*	Full	20	20	20	20	0		
Francisco Face Occide	5	Full	20	10	10	0	0		
Froggy's Fog Quick Blast Fluid	15	Full	20	20	20	20	0		
Diast Fluid	30*	Full	20	20	20	20	0		

^{*}Machine does not run continuously for longer than 30 seconds.

Updated: July 9, 2015

Note: Pump in machine was not factory-issued. Performance may vary from factory-issued machine.

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Bog Fog/K-razy Haze/Training Smoke XD. Backwood Bay/Faze Haze/Training Smoke FR. Velocity/Cryo Freeze/Quick Blast/Training Smoke Q. Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice 2009 Formula, Light Fog, prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.</u>

TIME-AND-DISTANCE GUIDELINES 1520 RGB Upshot with Froggy's Fog Quick Blast Fluid									
Release Duration	Release Time (in sec) After Which Air Concentrations Are Below								
(secs)	Machine Setting	5 ft	10 ft	15 ft	20 ft	25 ft			
5	Full	30	30	30	30	0			
15	Full	30	30	30	30	20			
30*	Full	Full 30 30 30 30 20							
60*	Full	30	30	30	30	20			

^{*}Machine pulses after 20 seconds

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Bog Fog/K-razy Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke FR, Velocity/Cryo Freeze/Quick Blast/Training Smoke Q, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice 2009 Formula, Light Fog, prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.</u>



	TIME-AND-DISTANCE GUIDELINES DNG-200 with Froggy's Fog Cryo Freeze Fluid							
Measurement	Release Duration	Time (in sec) Aft Below Gu	ter Whic	h Air C	oncentr		Are	
Direction	(secs)	Machine Setting	5 ft	8 ft	12 ft	16 ft	20 ft	
	30	Manual	0	0	0	0	0	
	60	Manual	0	0	0	0	0	
	30	High	0	0	0	0	0	
	60	High	0	0	0	0	0	
	120 [†]	High	0	0	0	0	0	
	30	Med	0	0	0	0	0	
Horizontal	60	Med	0	0	0	0	0	
riorizoritai	120	Med	0	0	0	0	0	
	30	Low	0	0	0	0	0	
	60	Low	0	0	0	0	0	
	120	Low 0 0 0 0 0						
	*Machine takes 10 seconds to release fog after turned on †Machine shuts off after 100 seconds							
	30	Manual	20	20	0	0	0	
	60	Manual	20	20	0	0	0	
	30	High	30	0	0	0	0	
	60	High	30	0	0	0	0	
	120 [†]	High	30	0	0	0	0	
	30	Med	0	0	0	0	0	
	60	Med	0	0	0	0	0	
Vertical**	120	Med	0	0	0	0	0	
	30	Low	0	0	0	0	0	
	60	Low	0	0	0	0	0	
	120	Low	0	0	0	0	0	
	**All concentrations are measured at same horizontal distance from machine (approximately 6 feet). *Machine takes 10 seconds to release fog after turned on †Machine shuts off after 100 seconds							

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment:</u>
<u>Bog Fog/K-razy Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke FR, Velocity/Cryo Freeze/Quick Blast/Training Smoke Q, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice 2009 Formula, Light Fog, prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.</u>

TIME AND DISTANCE GUIDELINES F-5/F-5D Fazer with Froggy's Fog Faze Haze Fluid									
Release Duration (secs)	Time (in	sec) After W		concentra 40 mg/m		e Below G	uidance		
(Secs)	Machine	Setting	5 ft	10 ft	15 ft	20 ft	25 ft		
30	Fan 100	100	0	0	0	0	0		
60	Fan 100	100	10	10	10	0	0		
120	Fan 100	100	10	10	10	0	0		
30	Fan 100	65	0	0	0	0	0		
60	Fan 100	65	0	0	0	0	0		
120	Fan 100	65	0	0	0	0	0		
30	Fan 100	25	0	0	0	0	0		
60	Fan 100	25	0	0	0	0	0		
120	Fan 100	25	0	0	0	0	0		
30	Fan 50	100	10	10	10	0	0		
60	Fan 50	100	20	20	20	0	0		
120	Fan 50	100	20	20	20	0	0		
30	Fan 50	65	10	10	10	0	0		
60	Fan 50	65	10	10	10	0	0		
120	Fan 50	65	10	10	10	0	0		
30	Fan 20	100	30	30	30	0	0		
60	Fan 20	100	30	30	30	0	0		
120	Fan 20	100	30	30	30	0	0		
30	Fan 20	65	30	30	30	0	0		
60	Fan 20	65	30	30	30	0	0		
120	Fan 20	65	30	30	30	0	0		

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment:</u>
Bog Fog/K-razy Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke FR, Velocity/Cryo
Freeze/Quick Blast/Training Smoke Q, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice
2009 Formula, Light Fog, prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.

	TIME-AND-DISTANCE GUIDELINES ICE with Froggy's Fog Cryo Freeze Fluid									
Measurement Direction	Release Duration	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m³)								
Direction	(secs)	Machine Setting	5 ft	8 ft	12 ft	16 ft	20 ft			
	30	High	0	0	0	0	0			
	60†	High	0	0	0	0	0			
	120‡	High	0	0	0	0	0			
	30	Med	0	0	0	0	0			
Horizontal	60†	Med	0	0	0	0	0			
1101.201114.	120‡	Med	0	0	0	0	0			
	*Machine does not have visible output at low setting †Machine turns off for 10 seconds during run ‡Machine turns off for 30 seconds total during run									
	30	High	30	20	0	0	0			
	60†	High	30	30	0	0	0			
	120‡	High	30	30	0	0	0			
	30	Med	20	10	0	0	0			
	60†	Med	20	10	0	0	0			
Vertical**	120‡	Med	30	10	0	0	0			
	**All concentrations are measured at same horizontal distance from machine (approximately 6 feet). *Machine does not have visible output at low setting †Machine runs off for 10 seconds during run ‡Machine turns off for 30 seconds total during run									

Reference: Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Bog Fog/K-razy Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke FR, Velocity/Cryo Freeze/Quick Blast/Training Smoke Q, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice 2009 Formula, Light Fog, prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.



	Т	IME-AND-D	ISTANCE G M-5	UIDELINES	5		
Fluid	Machine	Release Duration		sec) After elow Guida			
	Setting	(sec)	5 ft	10 ft	15 ft	20 ft	25 ft
	100	5	90	90	90	90	90
	100	15	90	90	90	90	90
	100	30*	90	90	90	90	90
Froggy's Fog	65	30 [†]	60	60	60	50	0
Backwood Bay Fluid	65	60 [†]	70	70	60	50	10
	25	60	50	0	0	0	0
		nuts off after ins at reduce			5 seconds		
	100	5	90	90	90	90	90
	100	15	90	90	90	90	90
	100	30*	90	90	90	90	90
Froggy's Fog Amusement Park	65	30 [†]	60	60	60	50	0
Fluid	65	60 [†]	70	70	60	50	10
Tidia	25	60	50	0	0	0	0
	*Machine sh	nuts off after	20 seconds				•
	†Machine ru	ns at reduce	d output vol	ume after 1	5 seconds		
	100	5	90	90	50	30	0
	100	15	90	90	60	60	60
Froggy's Fog Bog	100	30	100	100	60	60	60
Fog	65	30	100	30	0	0	0
	65	60	110	40	0	0	0
	25	60	110	0	0	0	0
	100	5	20	20	0	0	0
	100	15	20	20	20	10	0
	100	30*	20	20	20	10	0
Froggy's Fog	65	15	10	10	0	0	0
Velocity	65	30	0	10	0	0	0
	65	60	20	20	0	0	0
	25	60	20	0	0	0	0
	*Machine sl	nuts off after	20 seconds				
	100	5	20	20	0	0	0
	100	15	20	20	20	10	0
	100	30*	20	20	20	10	0
Froggy's Fog Cryo	65	15	10	10	0	0	0
Freeze Fluid	65	30	0	10	0	0	0
	65	60	20	20	0	0	0
	25	60	20	0	0	0	0
	*Machine sl	nuts off after	20 seconds				
	100	5	20	20	0	0	0
	100	15	20	20	20	10	0

TIME-AND-DISTANCE GUIDELINES M-5											
Fluid	Machine	Concentrate (40 mg/m ²	ncentrations Are ma/m³)								
	Setting	(sec)	5 ft	10 ft	15 ft	20 ft	25 ft				
	100	30*	20	20	20	10	0				
	65	15	10	10	0	0	0				
Froggy's Fog Quick	65	30	0	10	0	0	0				
Blast Fluid	65	60	20	20	0	0	0				
	25	60	20	0	0	0	0				
	*Machine sl	nuts off after	20 seconds	·	·	·	_				

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Bog Fog/K-razy Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke FR, Velocity/Cryo Freeze/Quick Blast/Training Smoke Q, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice 2009 Formula, Light Fog, prepared by ENVIRON International Corporation for Froggy's Fog, November 2014.</u>



	Т	IME-AND-D	ISTANCE O	GUIDELINE	S		
Fluid	Machine	Release Duration	Time (in		Which Air		
	Setting	(sec)	5 ft	10 ft	15 ft	20 ft	25 ft
	High	5	80	80	80	80	70
	High	15	80	80	80	80	70
	High	30	80	80	80	80	70
	Medium	30	50	50	50	50	40
Froggy's Fog	Medium	60	60	60	60	60	50
Backwood Bay Fluid	Medium	120*	70	70	60	60	50
	Low	60 [†]	60	60	60	60	50
	Low	120 [†]	70	70	60	60	50
		nuts off after ulses every 5					
	High	5	80	80	80	80	70
	High	15	80	80	80	80	70
	High	30	80	80	80	80	70
	Medium	30	50	50	50	50	40
Froggy's Fog	Medium	60	60	60	60	60	50
Amusement Park Fluid	Medium	120*	70	70	60	60	50
Tidia	Low	60 [†]	60	60	60	60	50
	Low	120 [†]	70	70	60	60	50
		nuts off after ulses every 5					
	High	5	40	40	30	20	0
	High	15	70	70	60	60	60
	High	30	70	70	60	60	60
	Medium	15	60	60	60	60	60
Froggy's Fog Bog	Medium	30	60	60	60	60	60
Fog Fluid	Medium	60*	110	110	60	60	60
	Low	60	110	110	10	0	0
	Low	120 [†]	110	110	10	0	0
		nuts off after outs off after					
	High	5	30	30	30	30	0
	High	15	40	40	30	30	30
	High	30*	40	40	30	30	30
	Med	15	30	30	30	30	0
Froggy's Fog	Med	30†	30	30	30	30	10
Velocity Fluid	Med	ed 30† 30 30 30 3 ed 60‡ 30 30 30 3	30	10			
	Low	60	30	30	0	0	0
	Low	120	30	30	0	0	0
	†Machine ru	uns at reduce Ins at reduced Outs off after	d output vo	lume after 2			

TIME-AND-DISTANCE GUIDELINES M-8										
Fluid	Machine Setting	Release Duration	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m³)							
	Setting	(sec)	5 ft	10 ft	15 ft	20 ft	25 ft			
	High	5	30	30	30	30	0			
	High	15	40	40	30	30	30			
	High	30*	40	40	30	30	30			
	Med	15	30	30	30	30	0			
Froggy's Fog Cryo	Med	30†	30	30	30	30	10			
Freeze Fluid	Med	60‡	30	30	30	30	10			
	Low	60	30	30	0	0	0			
	Low	120	30	30	0	0	0			
	†Machine ru	uns at reduce Ins at reduced Outs off after	d output vol							
	High	High 5 30 30 30 0								
	High	15	40	40	30	30	30			
	High	30*	40	40	30	30	30			
	Med	15	30	30	30	30	0			
Froggy's Fog Quick	Med	30†	30	30	30	30	10			
Blast Fluid	Med	60‡	30	30	30	30	10			
	Low	60	30	30	0	0	0			
	Low	120	30	30	0	0	0			
	†Machine ru	uns at reduce Ins at reduce Inuts off after	d output vol							

Reference: Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Bog Fog/K-razy Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke FR, Velocity/Cryo Freeze/Quick Blast/Training Smoke Q, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice 2009 Formula, Light Fog, prepared by ENVIRON International Corporation for Froggy's Fog, November 2014.

TIME-AND-DISTANCE GUIDELINES M-10										
Fluid	Machine	Release Duration	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m³)							
	Setting	(sec)	5 ft	10 ft	15 ft	20 ft	25 ft			
	100%	5	90	90	90	70	70			
	100%	15	100	100	90	70	70			
	100%	30	120	120	100	100	70			
	65%	15	90	60	50	40	30			
Froggy's Fog Bog Fog Fluid	65%	30	120	120	70	70	60			
Fog Fluid	65%	60*	120	120	70	70	60			
	25%	60	60	0	0	0	0			
	25%	120	60	30	0	0	0			
	*Machine s	huts off after	48 seconds	i						
	100%	5	30	30	30	30	20			
	100%	15	30	30	30	30	20			
	100%	30	30	30	30	30	20			
Froggy's Fog	65%	15	30	20	20	0	0			
Velocity Fluid	65%	30	30	30	30	0	0			
	65%	60	30	30	30	0	0			
	25%	60	0	0	0	0	0			
	25%	120	0	0	0	0	0			
	100%	5	30	30	30	30	20			
	100%	15	30	30	30	30	20			
	100%	30	30	30	30	30	20			
Froggy's Fog Cryo	65%	15	30	20	20	0	0			
Freeze Fluid	65%	30	30	30	30	0	0			
	65%	60	30	30	30	0	0			
	25%	60	0	0	0	0	0			
	25%	120	0	0	0	0	0			
	100%	5	30	30	30	30	20			
	100%	15	30	30	30	30	20			
	100%	30	30	30	30	30	20			
Froggy's Fog Quick Blast Fluid	65%	15	30	20	20	0	0			
	65%	30	30	30	30	0	0			
	65%	60	30	30	30	0	0			
	25%	60	0	0	0	0	0			
	25%	120	0	0	0	0	0			

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Bog Fog/K-razy Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke FR, Velocity/Cryo Freeze/Quick Blast/Training Smoke Q, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice 2009 Formula, Light Fog, prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.</u>

Fluid Machine Setting Release Duration (Sec) Sit 10 ft 15 ft 20 ft 25 ft ft 25 ft 20 ft 25 ft	TIME-AND-DISTANCE GUIDELINES X-515 Time (in sec) After Which Air Concentrations Are										
Setting	Fluid										
100% 15 70 70 70 50 40		Setting		5 ft	10 ft	15 ft	20 ft	25 ft			
100% 30 70 70 70 40 40 0								_			
Serogy's Fog Backwood Bay Fluid 65% 30 50 40 40 40 40 0 0 0 0											
Froggy's Fog Backwood Bay Fluid 65% 60 70 70 40 40 40 0 0 65% 120* 70 70 40 40 40 0 0 25% 60 60 50 30 0 0 0 0 25% 120 60 50 30 0 0 0 0 0 25% 120 60 50 30 0 0 0 0 0 0 0 0			30	70	70	70	50				
Backwood Bay Fluid 25% 60 60 50 30 0 0 0 0 0 0 0 0											
Proggy's Fog Fog Fluid											
25% 120 60 50 30 0 0 **Machine ran at reduced output volume after 45 seconds, machine turned off for 37 seconds during run 100% 5	Backwood Bay Fluid						l				
*Machine ran at reduced output volume after 45 seconds, machine turned off for 37 seconds during run 100% 5											
100% 5						ı	I	I			
Froggy's Fog Amusement Park Fluid Froggy's Fog Amusement Park Fluid Froggy's Fog Sensitive Park Fluid Froggy's Fog Sensitive Park Fluid Froggy's Fog Sensitive Park Fluid Froggy's Fog Bog Fog Fluid Froggy's Fog Sensitive Park Fluid Froggy's Fog Sensitive Park Fluid Froggy's Fog Bog Fluid Froggy's Fog Sensitive Park Fluid Froggy's Fog Cryo Frog				l output volu	ıme after 45	seconds, r	machine turi	ned off for			
Froggy's Fog Amusement Park Fluid Froggy's Fog Amusement Park Fluid Froggy's Fog Bog Fog Fluid Froggy's Fog Bog Froggy Bog Fog Fluid Froggy's Fog Bog Froggy Bog Fog Fluid Froggy's Fog Bog Bog Froggy's Fog Bog Bog Froggy's Fog Bog Bog Bog Bog Bog Bog Bog Bog Bog B											
Froggy's Fog Amusement Park Fluid 65% 30 50 40 40 40 0 65% 60 70 70 40 40 0 65% 120* 70 70 40 40 0 25% 60 60 50 30 0 0 25% 120 60 50 30 0 0 *** Seconds during run *** Seconds during run *** Seconds during run *** Seconds during run *** ** Seconds machine turned off for 37 seconds during run *** ** Seconds during run *** Seconds during run *** Seconds during run *** ** Seconds during run *** Seconds during run											
Froggy's Fog Amusement Park Fluid 65% 60 70 70 40 40 0 25% 60% 120* 70 70 40 40 0 25% 60 60 50 30 0 0 *Machine ran at reduced output volume after 45 seconds, machine turned off for 37 seconds during run 100% 5 40 30 0 0 0 100% 15 50 30 0						l I	l I				
Amusement Park Fluid	Froggy's Fog										
Fluid 25% 60 60 50 30 0 0 0 0 0 0 0 0											
100% 15 50 30 0 0 0 0 0 0 0 0							l				
*Machine ran at reduced output volume after 45 seconds, machine turned off for 37 seconds during run 100% 5											
100% 5 40 30 0 0 0 0 0 100% 15 50 30 0 0 0 0 0 100% 15 50 30 0 0 0 0 0 0 0 100% 30 80 80 70 30 0 0 0 0 0 0 0 0											
Troggy's Fog Bog Fog Fluid Froggy's Fog Bog Fog Fluid 100% 15 50 30 0 0 0 0 0 0 0 0		37 seconds		l output volu		seconds, r	machine turr	ned off for			
100% 30 80 80 70 30 0		100%	5	40	30	0	0	0			
Froggy's Fog Bog Fog Fluid 65% 30 80 60 50 30 10 65% 60* 80 60 50 30 10 25% 60 80 40 0 0 0 0 25% 120* 80 40 0 0 0 0 25% 120* 80 40 0 0 0 0 *Machine runs at reduced output volume after 25 seconds thachine runs at reduced output volume after 4 seconds Froggy's Fog Sog Sog 30* 20 0 0 0 0 0 65% 30 20 10 0 0 0 65% 30 20 10 0 0 0 65% 120 20 10 0 0 0 65% 60 20 10 0 0 0 25% 60 0 0 0 0 0 0 25% 60 0 0 0 0 0 0 25% 60 0 0 0 0 0 0 7Machine ran at reduced output volume after 20 seconds Froggy's Fog Cryo Freeze Fluid 100% 5 0 0 0 0 0 0 0 0 100% 30* 20 0 0 0 0 0 0 25% 120 0 0 0 0 0 0 0 7Machine ran at reduced output volume after 20 seconds		100%	15	50	30	0	0	0			
Froggy's Fog Bog Fog Fluid 65% 60* 80 60 50 30 10 56% 120* 80 60 50 30 10 25% 60 80 40 0 0 0 *Machine runs at reduced output volume after 25 seconds that reduced output volume after 4 seconds *Machine runs at reduced output volume after 4 seconds 100% 5 0 0 0 0 0 100% 15 20 0 0 0 0 0 100% 30* 20 10 0		100%	30	80	80	70	30	0			
Froggy's Fog Velocity Fluid 65% 120* 80 60 50 30 10		65%	30	80	60	50	0	0			
Fog Fluid 65% 120* 80 60 50 30 10 25% 60 80 40 0 0 0 25% 120† 80 40 0 0 0 *Machine runs at reduced output volume after 25 seconds that reduced output volume after 4 seconds *Machine runs at reduced output volume after 4 seconds 100% 5 0 0 0 0 0 100% 15 20 0 0 0 0 0 100% 30* 20 20 0 <td< td=""><td>Fraggy's Fog Bog</td><td>65%</td><td>60*</td><td>80</td><td>60</td><td>50</td><td>30</td><td>10</td></td<>	Fraggy's Fog Bog	65%	60*	80	60	50	30	10			
25% 60 80 40 0 0 0 0 0 25% 120† 80 40 0 0 0 0 0 0 0 0		65%	120*	80	60	50	30	10			
25% 120 [†] 80 40 0 0 0 0 *Machine runs at reduced output volume after 25 seconds †Machine runs at reduced output volume after 4 seconds	9	25%	60	80	40	0	0	0			
TMachine runs at reduced output volume after 4 seconds 100% 5 0 0 0 0 0 0 0 0 0		25%	120 [†]	80	40	0					
Froggy's Fog Velocity Fluid Froggy's Fog Velocity Fluid Froggy's Fog Velocity Fluid Froggy's Fog Cryo Freeze Fluid 100% 15 20 0 0 0 0 0 0 0 0				•							
Froggy's Fog Velocity Fluid 100% 30* 20 20 0 0 0 65% 30 20 10 0 0 0 65% 60 20 10 0 0 0 65% 120 20 10 0 0 0 25% 60 0 0 0 0 0 0 25% 120 0 0 0 0 0 0 *Machine ran at reduced output volume after 20 seconds *Machine ran at reduced output volume after 20 seconds *Toggy's Fog Cryo 100% 5 0 0 0 0 0 *Toggy's Fog Cryo 100% 15 20 0 0 0 0 *Toggy's Fog Cryo 100% 30* 20 20 0 0 0		100%	5	0	0	0	0	0			
Froggy's Fog Velocity Fluid 65% 60 20 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		100%	15	20	0	0	0	0			
Froggy's Fog Velocity Fluid 65% 30 20 10 0 0 0 65% 60 20 10 0 0 0 65% 120 20 10 0 0 0 25% 60 0 0 0 0 0 25% 120 0 0 0 0 0 *Machine ran at reduced output volume after 20 seconds Froggy's Fog Cryo Freeze Fluid 100% 5 0 0 0 0 0 100% 15 20 0 0 0 0 100% 30* 20 0 0 0 0		100%	30*	20	20	0	0	0			
Froggy's Fog Velocity Fluid 65% 60 20 10 0 0 0 65% 120 20 10 0 0 0 25% 60 0 0 0 0 0 25% 120 0 0 0 0 0 *Machine ran at reduced output volume after 20 seconds Froggy's Fog Cryo Freeze Fluid 100% 5 0 0 0 0 0 100% 15 20 0 0 0 0 100% 30* 20 0 0 0			30	20		0	0	0			
Velocity Fluid 65% 120 20 10 0 0 0 25% 60 0 0 0 0 0 0 25% 120 0 0 0 0 0 *Machine ran at reduced output volume after 20 seconds Froggy's Fog Cryo Freeze Fluid 100% 5 0 0 0 0 0 0 100% 15 20 0 0 0 0 0 100% 30* 20 0 0 0 0											
25% 60 0 0 0 0 0 0 0 0	Velocity Fluid										
25% 120 0 0 0 0 0 *Machine ran at reduced output volume after 20 seconds Froggy's Fog Cryo Freeze Fluid 100% 5 0 0 0 0 0 100% 15 20 0 0 0 0 100% 30* 20 0 0 0	j										
*Machine ran at reduced output volume after 20 seconds 100% 5					_						
Froggy's Fog Cryo 100% 15 20 0 0 0 0 Freeze Fluid 100% 30* 20 20 0 0 0						ı.	70				
Froggy's Fog Cryo 100% 15 20 0 0 0 0 Freeze Fluid 100% 30* 20 20 0 0 0		100%	5	0	0	0	0	0			
Freeze Fluid 100% 30* 20 20 0 0 0	Froggy's Foa Cryo			20							
					20						
		65%	30	20	10	1	l				

	TIME-AND-DISTANCE GUIDELINES X-515										
Fluid	Machine	Release Duration		sec) After ' elow Guida							
	Setting	(sec)	5 ft	10 ft	15 ft	20 ft	25 ft				
	65%	60	20	10	0	0	0				
	65%	120	20	10	0	0	0				
	25%	60	0	0	0	0	0				
	25%	120	0	0	0	0	0				
	*Machine ra	Machine ran at reduced output volume after 20 seconds									
	100%	5	0	0	0	0	0				
	100%	15	20	0	0	0	0				
	100%	30*	20	20	0	0	0				
	65%	30	20	10	0	0	0				
Froggy's Fog Quick	65%	60	20	10	0	0	0				
Blast Fluid	65%	120	20	10	0	0	0				
	25%	60	0	0	0	0	0				
	25%	120	0	0	0	0	0				
	*Machine ra	n at reduced	output volu	ıme after 20	seconds						

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Bog Fog/K-razy Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke FR, Velocity/Cryo Freeze/Quick Blast/Training Smoke Q, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice 2009 Formula, Light Fog, prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.</u>



	TIME AND DISTANCE GUIDELINES Z-350 with Froggy's Fog Beam Splitter Fluid									
Release Duration	Time (in se	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m³)								
(secs)	Machine S	Setting	2 ft	5 ft	10 ft	15 ft	20 ft			
30	Fan Max	Max	10	0	0	0	0			
60	Fan Max	Max	10	0	0	0	0			
120	Fan Max	Max	20	0	0	0	0			
30	Fan Max	Middle	0	0	0	0	0			
60	Fan Max	Middle	10	0	0	0	0			
120	Fan Max	Middle	10	0	0	0	0			
30	Fan Middle	Max	20	0	0	0	0			
60	Fan Middle	Max	20	0	0	0	0			
120	Fan Middle	Max	20	0	0	0	0			
30	Fan Middle	Middle	0	0	0	0	0			
60	Fan Middle	Middle	10	0	0	0	0			
120	Fan Middle	Middle	10	0	0	0	0			
30	Fan Min	Max	20	0	0	0	0			
60	Fan Min	Max	20	0	0	0	0			
120	Fan Min	Max	20	0	0	0	0			
30	Fan Min	Middle	20	0	0	0	0			
60	Fan Min	Middle	20	0	0	0	0			
120	Fan Min	Middle	20	0	0	0	0			

^{*}No output at minimum setting

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment:</u>
<u>Bog Fog/K-razy Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke FR, Velocity/Cryo Freeze/Quick Blast/Training Smoke Q, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice 2009 Formula, Light Fog, prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.</u>

BARCO/HIGH END SYSTEMS

Updated: July 9, 2015

	TIME-AND-DISTANCE GUIDELINES High End Systems F-100									
Fluid	Machine	Duration Below Guidance Level (40 m						ons Are		
	Setting	(sec)	3 ft	6 ft	9 ft	12 ft	15 ft	18 ft		
Atmosphere Cold	Full	15	70	30	30	30	30	30		
Flow Formula	Medium	15	40	40	30	30	0	0		
Atmosphere HQ	Full	15	190	190	180	20	0	0		
Formula	Medium	15	170	80	70	0	0	0		
Atmosphere Stage Formula	Full/Med	15	0	0	0	0	0	0		

Reference: <u>Equipment-Based Guidelines for the Use of Theatrical Smoke and Haze</u>, prepared by ENVIRON International Corporation for the Equity-League Pension and Health Trust Funds, June 8, 2001.

	TIME-AND-DISTANCE GUIDELINES Barco/High End Systems FQ-100										
Fluid	Machine Setting	Release Duration				Concentrate (40 mg/m					
	Setting	(sec)	6 ft	9 ft	12 ft	15 ft	18 ft				
	75	5	60	60	60	60	60				
	75	15	100	100	100	100	90				
	50	5	60	60	60	60	60				
Atmosphere HQ Formula	50	15	100	100	100	100	90				
Torridia	25	5	60	60	60	60	60				
	25	15	60	60	60	60	60				
	25	30	80	80	80	80	80				
	99	5	100	100	100	100	80				
	99	15	100	100	100	100	80				
	75	5	80	80	80	80	80				
Atmosphere Stage	75	15	90	90	90	90	80				
Formula	50	5	80	80	80	80	80				
	50	15	90	90	90	90	80				
	25	5	0	0	0	0	0				
	25	15	90	90	90	90	80				

Reference: <u>Calibration Factors and Time-and-Distance Guidelines for the Use of Theatrical Fog Equipment, Barco FQ-100 with Atmospheres Stage Fluid and Barco FQ-100 with Atmospheres HQ Fluid, prepared by ENVIRON International Corporation for Barco Lighting Systems, December 2010.</u>



BLUE HAZE ENTERTAINMENT (BHE)

Updated: July 9, 2015

	TIME-AND-DISTANCE GUIDELINES BHE 1550										
Fluid	Machine	Release Duration	Time (ir			ir Concentel (40 mg/	/m³)				
	Setting	(sec)	5 ft	10 ft	15 ft	20 ft	25 ft				
	100%	5	40	40	40	40	0				
	100%	15	70	70	70	50	40				
	100%	30	70	70	70	50	40				
	65%	30	50	40	40	40	0				
Froggy's Fog	65%	60	70	70	40	40	0				
Backwood Bay Fluid	65%	120*	70	70	40	40	0				
Fluid	25%	60	60	50	30	0	0				
	25%	120	60	50	30	0	0				
	*Machine ran 37 seconds du		utput volum	ne after 45	seconds, m	nachine turr	ned off for				
	100%	5	40	40	40	40	0				
	100%	15	70	70	70	50	40				
	100%	30	70	70	70	50	40				
Froggy's Fog	65% 65%	30 60	50 70	40 70	40 40	40 40	0				
Amusement	65%	120*	70	70	40	40	0				
Park Fluid	25%	60	60	50	30	0	0				
	25%	120	60	50	30	0	0				
	*Machine ran 37 seconds du	at reduced o				nachine turr	ned off for				
	100%	5	40	30	0	0	0				
	100%	15	50	30	0	0	0				
	100%	30	80	80	70	30	0				
	65%	30	80	60	50	0	0				
Fraggy/a Fag	65%	60*	80	60	50	30	10				
Froggy's Fog Bog Fog Fluid	65%	120*	80	60	50	30	10				
209:09:14.4	25%	60	80	40	0	0	0				
	25%	120 [†]	80	40	0	0	0				
	*Machine run: †Machine run:		•								
	100%	5	0	0	0	0	0				
	100%	15	20	0	0	0	0				
	100%	30*	20	20	0	0	0				
	65%	30	20	10	0	0	0				
Froggy's Fog Velocity Fluid	65%	60	20	10	0	0	0				
velocity Fluid	65%	120	20	10	0	0	0				
	25%	60	0	0	0	0	0				
	25%	120	0	0	0	0	0				
	*Machine ran		utput volum	ı	ı						
	100%	5	0	0	0	0	0				
	100%	15	20	0	0	0	0				

BLUE HAZE ENTERTAINMENT (BHE)

	TI	IME-AND-DI E	STANCE G 3HE 1550	UIDELINE	S			
Fluid	Machine	Release Duration						
	Setting	(sec)	5 ft	10 ft	15 ft	20 ft	25 ft	
	100%	30*	20	20	0	0	0	
	65%	30	20	10	0	0	0	
Froggy's Fog	65%	60	20	10	0	0	0	
Cryo Freeze	65%	120	20	10	0	0	0	
Fluid	25%	60	0	0	0	0	0	
	25%	120	0	0	0	0	0	
	*Machine ran	at reduced o	utput volum	e after 20	seconds			
	100%	5	0	0	0	0	0	
	100%	15	20	0	0	0	0	
	100%	30*	20	20	0	0	0	
Froggy's Fog	65%	30	20	10	0	0	0	
Quick Blast	65%	60	20	10	0	0	0	
Fluid	65%	120	20	10	0	0	0	
	25%	60	0	0	0	0	0	
	25%	120	0	0	0	0	0	
	*Machine ran	at reduced o	utput volum	e after 20	seconds			

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Bog Fog/K-razy Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke FR, Velocity/Cryo Freeze/Quick Blast/Training Smoke Q, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice 2009 Formula, Light Fog, prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.</u>

	Т	IME-AND-D	ISTANCE (GUIDELIN	ES				
Fluid	Machine	Release Duration	Time (in						
11010	Setting	(sec)	5 ft	10 ft	15 ft	20 ft	25 ft		
	Full	5	40	40	30	30	30		
	Full	15	40	40	40	40	40		
Froggy's Fog	Full	30*	60	60	50	50	40		
Backwood Bay	Full	60*	60	60	50	30 40 50 50 50 50 50 50 50 50 50 5	40		
Fluid	Full	120*	60	60	50		50		
	*Machine rai	n at reduced	output volu	ıme after 1	8 seconds		<u>'</u>		
	Full	5	40	40	30	30	30		
	Full	15	40	40	40		40		
Froggy's Fog	Full	30*	60	60	50	50	40		
Amusement Park Fluid	Full	60*	60	60	50		40		
riuiu	Full	120*	60	60		(40 mg/m 20 ft 30	50		
	*Machine rai	n at reduced	output volu	me after 1	8 seconds				
	Full	5	70	50	40	30	0		
	Full	15	70	70	70	70	70		
Froggy's Fog Bog	Full	30*	90	90	70	70	70		
Fog Fluid	Full	60*	90	90	70	70	70		
Ü	Full	120*	90	90	70	70	70		
	*Machine rar	n at reduced	output volu	ıme after 2	0 seconds				
	Full	5	30	30	30	0	0		
	Full	15*	30	30	30	20	0		
Froggy's Fog	Full	30*	30	30	30	20	0		
Velocity Fluid	Full	60*	30	30	30	20	0		
,	Full	120*	30	30	30	20	0		
	*Machine rai	n at reduced	output volu	ıme after 1	0 seconds	20 0 20 0 20 0 20 0			
	Full	5	30	30	30	0	0		
	Full	15*	30	30	30	20	0		
Fraggy/s Fag	Full	30*	30	30			0		
Froggy's Fog Cryo Freeze Fluid	Full	60*	30	30			0		
01 90 110020 11010	Full	120*	30	30			0		
		n at reduced	ı	ı					
	Full	5	30	30	30	0	0		
	Full	15*	30	30			0		
Fraggy / a Fac	Full	30*	30	30			0		
Froggy's Fog Quick Blast Fluid	Full	60*	30	30			0		
Zaick Diast Fluid	Full	120*	30	30		30 20 30 20	0		
			d output volume after 10 seconds						
			7 ft	15 ft	20 ft	25 ft	30 ft		
	Full	5	30	30	20		0		
Froggy's Fog	Full	15*	30	30	30		20		
Techno Fluid	Full	30*	50	50		Color Colo	40		
	Full	60*	50	50		30	40		

TIME-AND-DISTANCE GUIDELINES 1800 Flex								
Fluid	Machine	Release Duration						
	Setting	(sec)	5 ft	10 ft	15 ft	20 ft	25 ft	
	Full	Full 120* 60 60 60 40						
	*Machine ran at reduced output volume after 12 seconds							

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Bog Fog/K-razy Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke FR, Velocity/Cryo Freeze/Quick Blast/Training Smoke Q, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice 2009 Formula, Light Fog, prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.</u>



	TIME AND DISTANCE GUIDELINES AmHaze II with Froggy's Fog Faze Haze Fluid									
Release Duration	Time (in s	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m³)								
(secs)	Machine S	Setting	4 ft	8 ft	12 ft	16 ft				
30	Fan 100	100%	20	0	0	0				
60	Fan 100	100%	20	0	0	0				
120	Fan 100	100%	20	30	0	0				
30	Fan 100	65%	20	0	0	0				
60	Fan 100	65%	20	0	0	0				
120	Fan 100	65%	20	0	0	0				
30	Fan 100	25%	0	0	0	0				
60	Fan 100	25%	10	0	0	0				
120	Fan 100	25%	10	0	0	0				
30	Fan 50	100%	30	30	0	0				
60	Fan 50	100%	40	40	0	0				
120	Fan 50	100%	40	40	30	0				
30	Fan 50	65%	30	30	0	0				
60	Fan 50	65%	30	30	0	0				
120	Fan 50	65%	30	30	0	0				
30	Fan 1	100%	50	50	40	0				
60	Fan 1	100%	50	50	40	0				
120	Fan 1	100%	50	50	40	0				
30	Fan 1	65%	50	50	40	0				
60	Fan 1	65%	50	50	40	0				
120	Fan 1	65%	50	50	40	0				

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment</u>: <u>Bog Fog/K-razy Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke FR, Velocity/Cryo Freeze/Quick Blast/Training Smoke Q, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice 2009 Formula, Light Fog, prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.</u>



TIME-AND-DISTANCE GUIDELINES Geyser with Froggy's Fog Quick Blast Fluid									
Release Time (in sec) After Which Air Concentrations Are Below Duration Guidance Level (40 mg/m³)									
(secs)	Machine Setting	Machine Setting 5 ft 10 ft 15 ft 20 ft 25							
5	Full	20	20	20	20	0			
15*	Full	20	20	20	20	20			
30 [†]	Full	20	20	20	20	20			
60 [‡]	Full	20	20	20	20	20			

^{*}Machine turned off after 10 seconds

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Bog Fog/K-razy Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke FR, Velocity/Cryo Freeze/Quick Blast/Training Smoke Q, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice 2009 Formula, Light Fog, prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.</u>

 $^{^{\}dagger}$ Machine pulsed on and off, ran for 15 seconds total

[‡]Machine pulsed on and off, ran for 25 seconds total

CITC

	TIME AND DISTANCE GUIDELINES AquaMax with Organic Haze Fluid								
Release Duration	Time (in	sec) After V		Concentra 50 mg/m		e Below G	uidance		
(secs)	Machine Setting		5 ft	10 ft	15 ft	20 ft	25 ft		
5	Fan 3	75%	10	0	0	0	0		
10	Fan 3	75%	10	0	0	0	0		
30	Fan 3	75%	10	0	0	0	0		
60	Fan 3	75%	10	0	0	0	0		
120	Fan 3	75%	30	0	0	0	0		
5	Fan 3	50%	0	0	0	0	0		
10	Fan 3	50%	0	0	0	0	0		
30	Fan 3	50%	0	0	0	0	0		
60	Fan 3	50%	0	0	0	0	0		
120	Fan 3	50%	0	0	0	0	0		
5	Fan 3	25%	0	0	0	0	0		
10	Fan 3	25%	0	0	0	0	0		
30	Fan 3	25%	0	0	0	0	0		
60	Fan 3	25%	0	0	0	0	0		
120	Fan 3	25%	0	0	0	0	0		
5	Fan 1	75%	0	0	0	0	0		
10	Fan 1	75%	0	0	0	0	0		
30	Fan 1	75%	0	0	0	0	0		
60	Fan 1	75%	10	0	0	0	0		
120	Fan 1	75%	25	0	0	0	0		
5	Fan 1	50%	0	0	0	0	0		
10	Fan 1	50%	10	0	0	0	0		
30	Fan 1	50%	10	0	0	0	0		
60	Fan 1	50%	10	0	0	0	0		
120	Fan 1	50%	10	0	0	0	0		
5	Fan 1	25%	0	0	0	0	0		
10	Fan 1	25%	0	0	0	0	0		
30	Fan 1	25%	5	0	0	0	0		
60	Fan 1	25%	5	0	0	0	0		
120	Fan 1	25%	5	0	0	0	0		

Reference: Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment:

Aquamax with Organic Haze Fluid and HazeMax with Water Vapour Haze Fluid, prepared by ENVIRON International Corporation for CITC, August 2014.

CITC

TIME-AND-DISTANCE GUIDELINES Fantasy FX Professional Haze							
Release Duration							
(secs)	Release Height 2 ft 6 ft						
2	Breathing height	0	Χ				
5		0	X				
10		0	X				
15		2	2				
30		2	2				

Note: X = not tested, but results are expected to be comparable to those at the 2 ft distance

Releasing the haze slightly above breathing height (e.g., simulating the spraying of hair spray above the head) did not result in any exceedances of the peak guidance level at the breathing height.

Reference: <u>Development of Time-And-Distance Guidelines for Use of Theatrical Smoke</u> <u>Equipment: Fantasy FX Professional Haze</u>, prepared by ENVIRON International Corporation for Richard Frankel Productions, Inc., December 14, 2006.

	TIME-AND-DISTANCE GUIDELINES HazeMax with Water Vapor Haze Fluid										
Release	•	Time (in sec) After Which Air Concentrations Are Below Guidance Level (50 mg/m³)									
Duration					20.54	25.64					
(secs)	Machine Setting	5 ft	10 ft	15 ft	20 ft	25 ft					
5	75%	30	0	0	0	0					
10	75%	30	10	0	0	0					
30	75%	60	50	30	0	0					
60	75%	60	50	30	0	0					
120	75%	70	50	30	0	0					
5	50%	20	0	0	0	0					
10	50%	20	0	0	0	0					
30	50%	60	50	0	0	0					
60	50%	60	50	0	0	0					
120	50%	70	50	0	0	0					

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog</u>
<u>Equipment: Aquamax with Organic Haze Fluid and HazeMax with Water Vapour Haze Fluid</u>, prepared by ENVIRON International Corporation for CITC, August 2014.



EPUFFER

	TIME-AND-DISTANCE GUIDELINES ePuffer Electronic Cigar/ E-Liquid								
Strength of Drag	Speed of Exhale	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m³) at a distance of 1 ft.							
Weak	Medium	0							
Medium	Medium	0							
Strong	Medium	0							
Medium	Slow	0							
Medium	Fast	30							

Notes: It should be noted that ENVIRON's testing was limited to glycols and glycerol. According to the manufacturer, these props also contain between 0 and 1.2 milligrams of nicotine. Potential health effects associated with potential exposures to nicotine are not within the scope of ENVIRON's review.

Testing of e-cigarette and related products is limited to second hand exposure after being exhaled by the user; the initial amount inhaled directly from the product was not measured.

Reference: Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: ePuffer Electronic Cigar with eliquid, prepared by ENVIRON International Corporation for Lucky Guy Broadway LLC, June 2013.

TIME-AND-DISTANCE GUIDELINES SG-1300										
Fluid	Release Duration	Machine Setting	Time (in se	ec) After Wh Guidance	nich Air Con e Level (40		Are Below			
	(secs)	Setting	5 ft	10 ft	15 ft	20 ft	25 ft			
	5	99%	30	30	30	30	30			
	15	99%	30	30	30	30	30			
	30*	99%	50	40	30	30	30			
Froggy's Fog	30	65%	50	10	0	0	0			
Training Smoke	60	65%	50	10	0	0	0			
FR Fluid – Fire Rescue Formula	120	65%	50	10	0	0	0			
Rescue Formula	60	25%	40	0	0	0	0			
	120	25%	40	0	0	0	0			
	*Machine had reduced output volume after 20 seconds									
	5	99	40	40	40	30	30			
	15	99	50	50	50	50	50			
	30	99	70	50	50	50	50			
Froggy's Fog	30	65	70	0	0	0	0			
Training Smoke	60	65	70	0	0	0	0			
XD Fluid –	120	65	70	0	0	0	0			
Extreme Density	60	25	0	0	0	0	0			
	120	25%	0	0	0	0	0			
			ds to release antly reduce	•	•					
	5	99%	0	0	0	0	0			
	15	99%	20	20	20	20	20			
Froggy's Fog	30	99%	30	20	20	20	20			
Training Smoke	30	65%	30	0	0	0	0			
Q Fluid – Quick	60	65%	30	10	0	0	0			
Dissipating	120	65%	30	10	0	0	0			
	60	25%	0	0	0	0	0			
Defenses Calibre	120	25%	0	0	0	0	0			

References: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Bog Fog/K-razy Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke FR, Velocity/Cryo Freeze/Quick Blast/Training Smoke Q, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice 2009 Formula, Light Fog, prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.</u>

	TIME-AND-DISTANCE GUIDELINES SG-2600											
Fluid	Release Duration	Machine Setting	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m³)									
	(secs)	Setting	5 ft	10 ft	15 ft	20 ft	25 ft					
	5	99%	40	40	40	40	40					
	15	99%	40	40	40	40	40					
	30*	99%	50	50	40	40	40					
Froggy's Fog	30	65%	20	0	0	0	0					
Training Smoke FR Fluid – Fire	60	65%	20	0	0	0	0					
Rescue Formula	120	65%	>180	0	0	0	0					
	60	25%	0	0	0	0	0					
	120	25%	0	0	0	0	0					
	*Machine had reduced output volume after 20 seconds											
	5	99%	90	50	40	40	40					
	15	99%	90	50	40	40	40					
	30	99%	90	70	40	40	40					
Froggy's Fog Training Smoke	30	65%	60	0	0	0	0					
XD Fluid – Extreme Density	60	65%	60	0	0	0	0					
Extreme Density	120	65%	60	0	0	0	0					
	60	25%	0	0	0	0	0					
	120	25%	0	0	0	0	0					

References: Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Bog Fog/K-razy Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke FR, Velocity/Cryo Freeze/Quick Blast/Training Smoke Q, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice 2009 Formula, Light Fog, prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.

TIME-AND-DISTANCE GUIDELINES FireBase SG M1500										
Fluid	Release Duration	Machine Setting	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m³)							
	(sec)	Setting	5 ft	10 ft	15 ft	20 ft	25 ft			
	5	100	90	90	90	90	90			
	15	100	90	90	90	90	90			
Froggy's Fog	30*	100	90	90	90	90	90			
Training Smoke	30 [†]	65	60	60	60	50	0			
FR Fire Rescue	60 [†]	65	70	70	60	50	10			
Formula	60	25	50	0	0	0	0			
	*Machine shuts off after 20 seconds †Machine runs at reduced output volume after 15 seconds									
	5	100	90	90	50	30	0			
Froggy's Fog	15	100	90	90	60	60	60			
Training Smoke	30	100	100	100	60	60	60			
XD Extreme	30	65	100	30	0	0	0			
Density	60	65	110	40	0	0	0			
	60	25	110	0	0	0	0			
	5	100	20	20	0	0	0			
	15	100	20	20	20	10	0			
	30*	100	20	20	20	10	0			
Froggy's Fog	15	65	10	10	0	0	0			
Training Smoke Q Quick Dissipating	30	65	0	10	0	0	0			
Quick Dissipating	60	65	20	20	0	0	0			
	60	25	20	0	0	0	0			
	*Machine s	huts off after	r 20 second	ls						

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Bog Fog/K-razy Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke FR, Velocity/Cryo Freeze/Quick Blast/Training Smoke Q, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice 2009 Formula, Light Fog, prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.</u>

	Т	IME-AND-D FireB	ISTANCE G ase SG-M1		S			
Fluid	Machine	Release Duration	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m³)					
	Setting	(sec)	5 ft	10 ft	15 ft	20 ft	25 ft	
	High	5	80	80	80	80	70	
	High	15	80	80	80	80	70	
	High	30	80	80	80	80	70	
Froggy's Fog	Medium	30	50	50	50	50	40	
Training Smoke FR	Medium	60	60	60	60	60	50	
– Fire Rescue	Medium	120*	70	70	60	60	50	
Formula	Low	60 [†]	60	60	60	60	50	
	Low	120 [†]	70	70	60	60	50	
	*Machine shuts off after 52 seconds †Machine pulses every 5 seconds at low setting							
	High	5	40	40	30	20	0	
	High	15	70	70	60	60	60	
	High	30	70	70	60	60	60	
_	Medium	15	60	60	60	60	60	
Froggy's Fog Training Smoke XD	Medium	30	60	60	60	60	60	
- Extreme Density	Medium	60*	110	110	60	60	60	
,	Low	60	110	110	10	0	0	
	Low	120 [†]	110	110	10	0	0	
		nuts off after outs off after						
	High	5	30	30	30	30	0	
	High	15	40	40	30	30	30	
	High	30*	40	40	30	30	30	
	Med	15	30	30	30	30	0	
Froggy's Fog	Med	30†	30	30	30	30	10	
Training Smoke Q –	Med	60‡	30	30	30	30	10	
Quick Dissipating	Low	60	30	30	0	0	0	
	Low	120	30	30	0	0	0	
	†Machine ru	uns at reduce ins at reduce outs off after	d output vol					

References: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Bog Fog/K-razy Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke FR, Velocity/Cryo Freeze/Quick Blast/Training Smoke Q, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice 2009 Formula, Light Fog, prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.</u>

Updated: July 9, 2015

TIME-AND-DISTANCE GUIDELINES FireBase SG-M3000									
Fluid	Machine Setting	Release Duration							
	Setting	(sec)	5 ft	10 ft	15 ft	20 ft	25 ft		
	100%	5	90	90	90	70	70		
	100%	15	100	100	90	70	70		
	100%	30	120	120	100	100	70		
Froggy's Fog	65%	15	90	60	50	40	30		
Training Smoke XD	65%	30	120	120	70	70	60		
 Extreme Density 	65%	60*	120	120	70	70	60		
	25%	60	60	0	0	0	0		
	25%	120	60	30	0	0	0		
	*Machine shuts off after 48 seconds								
	100%	5	30	30	30	30	20		
	100%	15	30	30	30	30	20		
	100%	30	30	30	30	30	20		
Froggy's Fog	65%	15	30	20	20	0	0		
Training Smoke Q – Quick Dissipating	65%	30	30	30	30	0	0		
20.5.t 2.55.pating	65%	60	30	30	30	0	0		
	25%	60	0	0	0	0	0		
	25%	120	0	0	0	0	0		

References: Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Bog Fog/K-razy Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke FR, Velocity/Cryo Freeze/Quick Blast/Training Smoke Q, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice 2009 Formula, Light Fog, prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.

HAZEBASE

TIME-AND-DISTANCE GUIDELINES Base Classic										
Fluid	Release Duration	Machine Setting	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m³)							
	(secs)		5 ft	10 ft	15 ft	20 ft	25 ft			
Froggy's Fog Backwood Bay Fluid	5	99%	30	30	30	30	30			
	15	99%	30	30	30	30	30			
	30*	99%	50	40	30	30	30			
	30	65%	50	10	0	0	0			
	60	65%	50	10	0	0	0			
	120	65%	50	10	0	0	0			
	60	25%	40	0	0	0	0			
	120	25%	40	0	0	0	0			
	*Machine had reduced output volume after 20 seconds									
	5	99%	30	30	30	30	30			
	15	99%	30	30	30	30	30			
	30*	99%	50	40	30	30	30			
Fraggy's Fag	30	65%	50	10	0	0	0			
Froggy's Fog Amusement Park	60	65%	50	10	0	0	0			
Fluid	120	65%	50	10	0	0	0			
	60	25%	40	0	0	0	0			
	120	25%	40	0	0	0	0			
	*Machine had reduced output volume after 20 seconds									
	5	99%	40	40	40	30	30			
	15	99%	50	50	50	50	50			
	30	99%	70	50	50	50	50			
Froggy's Fog Bog Fog Fluid	30	65%	70	0	0	0	0			
	60	65%	70	0	0	0	0			
	120	65%	70	0	0	0	0			
	60	25%	0	0	0	0	0			
	120	25%	0	0	0	0	0			
Froggy's Fog Velocity Fluid	5	99%	0	0	0	0	0			
	15	99%	20	20	20	20	20			
	30	99%	30	20	20	20	20			
	30	65%	30	0	0	0	0			
	60	65%	30	10	0	0	0			
	120	65%	30	10	0	0	0			
	60	25%	0	0	0	0	0			
	120	25%	0	0	0	0	0			
Froggy's Fog CyroFreeze Fluid	5	99%	0	0	0	0	0			
	15	99%	20	20	20	20	20			
	30	99%	30	20	20	20	20			
	30	65%	30	0	0	0	0			
	60	65%	30	10	0	0	0			

HAZEBASE

TIME-AND-DISTANCE GUIDELINES Base Classic											
Fluid	Release Duration (secs)	Machine Setting	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m³)								
			5 ft	10 ft	15 ft	20 ft	25 ft				
	120	65%	30	10	0	0	0				
	60	25%	0	0	0	0	0				
	120	25%	0	0	0	0	0				
Froggy's Fog Quick Blast Fluid	5	99%	0	0	0	0	0				
	15	99%	20	20	20	20	20				
	30	99%	30	20	20	20	20				
	30	65%	30	0	0	0	0				
	60	65%	30	10	0	0	0				
	120	65%	30	10	0	0	0				
	60	25%	0	0	0	0	0				
	120	25%	0	0	0	0	0				

References: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Bog Fog/K-razy Haze/Training Smoke XD. Backwood Bay/Faze Haze/Training Smoke FR. Velocity/Cryo Freeze/Quick Blast/Training Smoke Q. Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice 2009 Formula, Light Fog, prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.</u>



HAZEBASE

			ND-DISTAN ase High Po		NES				
Fluid	Release Duration	Machine Setting	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m³)						
	(secs)	Setting	5 ft	10 ft	15 ft	20 ft	25 ft		
	5	99%	40	40	40	40	40		
	15	99%	40	40	40	40	40		
	30*	99%	50	50	40	40	40		
Froggy's Fog	30	65%	20	0	0	0	0		
Backwood Bay Fluid	60	65%	20	0	0	0	0		
Tidia	120	65%	>180	0	0	0	0		
	60	25%	0	0	0	0	0		
	120	25%	0	0	0	0	0		
	*Machine ha	ad reduced o	utput volume	e after 20 sec	conds				
	5	99%	90	50	40	40	40		
	15	99%	90	50	40	40	40		
	30	99%	90	70	40	40	40		
Froggy's Fog	30	65%	60	0	0	0	0		
Bog Fog Fluid	60	65%	60	0	0	0	0		
	120	65%	60	0	0	0	0		
	60	25%	0	0	0	0	0		
	120	25%	0	0	0	0	0		

References: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Bog Fog/K-razy Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke FR, Velocity/Cryo Freeze/Quick Blast/Training Smoke Q, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice 2009 Formula, Light Fog, prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.</u>

HAZEBASE

		TIME-A		ANCE GUI	DELINES					
	Release	Time (in		azer Pro Which Ai	Vhich Air Concentrations Are Below Guidance					
Fluid	Duration			Leve	l (40 mg/					
	(secs)	Machine	Setting	4 ft	8 ft	12 ft	16 ft	20 ft		
	30	Fan 99	99	10	10	10	10	0		
	60	Fan 99	99	10	10	10	10	0		
	120	Fan 99	99	10	10	10	10	0		
	30	Fan 99	65	0	0	0	0	0		
	60	Fan 99	65	0	0	0	0	0		
	120	Fan 99	65	0	0	0	00	00		
	30	Fan 50	99	10	10	10	0	0		
	60	Fan 50	99	10	10	10	0	0		
Froggy's Fog	120	Fan 50	99	20	20	20	20	20		
Faze Haze Fluid	30	Fan 50	65	10	10	10	0	0		
	60	Fan 50	65	10	10	10	0	0		
	120	Fan 50	65	10	10	10	0	00		
	30	Fan 1	99	10	0	0	0	0		
	60	Fan 1	99	20	0	0	0	0		
	120	Fan 1	99	20	10	10	0	0		
	30	Fan 1	65	10	0	0	0	0		
	60	Fan 1	65	10	0	0	0	0		
	120	Fan 1	65	10	10	10	0	0		
	30	Fan 99	99	10	0	0	0	0		
	60	Fan 99	99	10	0	0	0	0		
	120	Fan 99	99	10	0	0	0	0		
	30	Fan 99	65	0	0	0	0	0		
	60	Fan 99	65	0	0	0	0	0		
	120	Fan 99	65	00	0	0	0	0		
	30	Fan 50	99	10	0	0	0	0		
	60	Fan 50	99	10	0	0	0	0		
base hazer	120	Fan 50	99	10	0	0	0	0		
liquid Fluid	30	Fan 50	65	0	0	0	0	0		
	60	Fan 50	65	10	0	0	0	0		
	120	Fan 50	65	10	0	0	00	0		
	30	Fan 1	99	20	0	0	0	0		
	60	Fan 1	99	20	0	0	0	0		
	120	Fan 1	99	20	0	0	0	0		
	30	Fan 1	65	10	0	0	0	0		
	60	Fan 1	65	10	0	0	0	0		
	120	Fan 1	65	20	0	0	0	0		
References: Calibr										

References: Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Bog Fog/K-razy Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke FR, Velocity/Cryo Freeze/Quick Blast/Training Smoke Q, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice 2009 Formula, Light Fog, prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.



LE MAITRE LTD.

TIME-AND-DISTANCE GUIDELINES Le Maitre Opti Mist Ranger with Mini Mist Canister								
Release Duration Time (in sec) After Which Air Concentrations Are Below Guidance (40 mg/m³)						e Level		
(secs)	Machine Setting	3 ft	6 ft	9 ft	12 ft	15 ft	18 ft	
15	Full	110	80	60	60	0	0	
15	Medium	110	80	60	60	0	0	

Reference: <u>Equipment-Based Guidelines for the Use of Theatrical Smoke and Haze</u>, prepared by ENVIRON International Corporation for the Equity-League Pension and Health Trust Funds, June 8, 2001.

Le N	TIME A	AND DIST				d		
Release Duration (secs)	Time (in sec) After Which Air Concentrations Are Below Guidance Level (50 mg/m³)							
(Secs)	Machine S	Setting	3 ft	5 ft	7 ft	10 ft	15 ft	
5	Fan 15	15	20	10	0	0	0	
10	Fan 15	15	20	10	10	10	0	
30	Fan 15	15	20	10	10	10	10	
60	Fan 15	10	20	10	0	0	0	
120	Fan 15	10	20	10	10	10	0	
5	Fan 15	10	20	10	10	10	10	
10	Fan 15	5	0	0	0	0	0	
30	Fan 15	5	10	10	10	0	0	
60	Fan 15	5	10	10	10	0	0	
120	Fan 7	15	20	20	20	0	0	
5	Fan 7	15	20	20	20	20	20	
10	Fan 7	15	20	20	20	20	20	
30	Fan 7	10	20	10	0	0	0	
60	Fan 7	10	20	10	10	10	10	
120	Fan 7	10	20	10	10	10	10	
5	Fan 1	15	0	0	0	0	0	
10	Fan 1	15	20	20	20	20	0	
30	Fan 1	15	20	20	20	20	0	
60	Fan 1	10	0	0	0	0	0	
120	Fan 1	10	20	20	20	20	0	
5	Fan 1	10	20	20	20	20	0	

^{*}Machine takes 20 seconds to release fog after button is pressed

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Bog Fog/K-razy Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke FR, Velocity/Cryo Freeze/Quick Blast/Training Smoke Q, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice 2009 Formula, Light Fog, prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.</u>



LE MAITRE LTD.

TIME-AND-DISTANCE GUIDELINES Le Maitre Neutron XS with Froggy's Fog Neutronic Haze Fluid								
Release Duration	Time (in sec) After Which Air Concentrations Are Below Guidance Level (50 mg/m ³)							
(secs)	Machine Setting	3 ft	6 ft	9 ft	12 ft	15 ft		
30	Full	0	0	0	0	0		
60	Full	Full 0 0 0 0 0						
120	Full	0	0	0	0	0		

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Bog Fog/K-razy Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke FR, Velocity/Cryo Freeze/Quick Blast/Training Smoke Q, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice 2009 Formula, Light Fog, prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.</u>

Updated: July 9, 2015

	TIME-AND-DISTANCE GUIDELINES Look Solutions Cryo-Fog with Cryo-Fog Fluid											
Release Duration	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m³)											
(secs)	Machine Setting	3 ft	9 ft	15ft	21 ft	27ft	33 ft					
30	99	0	0	0	0	0	0					
60		0	0	0	0	0	0					
180		0	0	0	0	0	0					
300		0	0	0	0	0	0					
30	75	0	0	0	0	0	0					
60		0	0	0	0	0	0					
180		0	0	0	0	0	0					
300		0	0	0	0	0	0					
30	30	0	0	0	0	0	0					
60		0	0	0	0	0	0					
180		0	0	0	0	0	0					
300		0	0	0	0	0	0					

References: <u>Development of Time-And-Distance Guidelines for Use of Theatrical Smoke Equipment: Look Solutions Low-Fogger</u>, prepared by ENVIRON International Corporation for Look Solutions, August 2006.

Letter from Look Solutions to ENVIRON International Corporation regarding Tiny-Compact, Tiny F07, Tiny C07, and Cryo-Fog, January 24, 2007

	TIME-AND-DISTANCE GUIDELINES Look Solutions Power Tiny Fogger with Tiny-Fluid								
Release Duration									
(sec)	1 ft								
15	0	0	0	0	0				
30	55	55 55 55 20 15							
60	60	60	60	50	20				

Reference: <u>Development of Time-And-Distance Guidelines for Use of Theatrical Smoke Equipment: Look Solutions Power Tiny</u>, prepared by ENVIRON International Corporation for Look Solutions, August 2006.

	TIME-AND-DISTANCE GUIDELINES Look Solutions Tiny-Fogger/Tiny F07 and Tiny-Compact/Tiny C07 with Tiny-Fluid										
Release	Time (in	sec) After \	Nhich Air C	oncentratio	ns Are Belo	ow Guidano	e Level (40	mg/m³)			
Duration (sec)	1 ft	1 ft 2 ft 3 ft 4 ft 5 ft 6 ft 7 ft 8 ft									
5	33	33	10	0	0	0	0	0			
15	33	33	23	7	0	0	0	0			
30	57 57 57 20 20 0										
60	67	67	57	57	20	20	20	0			

Reference: <u>Equipment-Based Guidelines for the Use of Theatrical Smoke and Haze</u>, prepared by ENVIRON International Corporation for the Equity-League Pension and Health Trust Funds, June 8, 2001.

Letter from Look Solutions to ENVIRON International Corporation regarding Tiny-Compact, Tiny F07, Tiny C07, and Cryo-Fog, January 24, 2007

TIME-AND-DISTANCE GUIDELINES Tiny FX with Tiny Fluid										
Release Duration										
(secs)	Machine Setting	Machine Setting 1 ft 2 ft 3 ft 5 ft 7 ft								
5	NA	30	30	0	0	0				
10	NA	50	40	0	0	0				
20	NA	50	40	0	0	0				
30	NA	50	40	30	20	0				

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Tiny FX with Tiny Fluid, Tiny S with Tiny Fluid, Viper NT with Slow-Fog Fluid, Viper NT with Regular-Fog Fluid, and Unique 2.1 with Unique Fluid, prepared by ENVIRON International Corporation for Look Solutions USA, Ltd., February 2014.</u>

	TIME-AND-DISTANCE GUIDELINES Tiny S with Tiny Fluid									
Release Duration	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m³)									
(secs)	Machine Setting	1 ft	2 ft	3 ft	5 ft	7 ft				
5	High	0	0	0	0	0				
10	High	30	30	30	0	0				
20	High	30	30	30	0	0				
30	High	30	30	30	0	0				
45	High	30	30	30	0	0				
5	Low	0	0	0	0	0				
10	Low	0	0	0	0	0				
20	Low	30	20	0	0	0				
30	Low	30	20	0	0	0				
45	Low	30	20	0	0	0				

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Tiny FX with Tiny Fluid, Tiny S with Tiny Fluid, Viper NT with Slow-Fog Fluid, Viper NT with Regular-Fog Fluid, and Unique 2.1 with Unique Fluid, prepared by ENVIRON International Corporation for Look Solutions USA, Ltd., February 2014.</u>

	TIME-AND-DISTANCE GUIDELINES Unique 2.1 with Unique Fluid										
Release Duration	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m³)										
(secs)	Machine Setting	5 ft	10 ft	15 ft	20 ft	25 ft					
5	90%	30	0	0	0	0					
15	90%	30	0	0	0	0					
30	90%	30	0	0	0	0					
60	90%	30	0	0	0	0					
120	90%	30	0	0	0	0					
5	75%	0	0	0	0	0					
15	75%	30	0	0	0	0					
30	75%	30	0	0	0	0					
60	75%	30	0	0	0	0					
120	75%	30	0	0	0	0					
5	50%	0	0	0	0	0					
15	50%	0	0	0	0	0					
30	50%	0	0	0	0	0					
60	50%	0	0	0	0	0					
120	50%	0	0	0	0	0					

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Tiny FX with Tiny Fluid, Tiny S with Tiny Fluid, Viper NT with Slow-Fog Fluid, Viper NT with Regular-Fog Fluid, and Unique 2.1 with Unique Fluid, prepared by ENVIRON International Corporation for Look Solutions USA, Ltd., February 2014.</u>



	TIME-AND- Look Solutions \				uid		
Release Duration	Time (in sec) After			ntrations		w Guidar	ce Level
(secs)	Machine Setting	3 ft	6 ft	9 ft	12 ft	15 ft	18 ft
5	99	15	15	15	15	15	15
15		30	30	30	30	30	28
30		30	30	30	30	30	28
45		30	30	30	30	30	28
5	75	5	5	5	0	0	0
15		10	10	10	10	5	0
30		25	25	25	25	25	25
60		40	40	40	40	40	15
120		40	40	40	40	40	15
180		40	40	40	40	40	15
5	50	0	0	0	0	0	0
15		0	0	0	0	0	0
30		20	20	20	15	0	0
60		20	20	20	20	0	0
180		20	20	20	20	0	0
30	25	0	0	0	0	0	0
60		20	20	0	0	0	0
180		20	20	0	0	0	0

Reference: <u>Development of Time-And-Distance Guidelines for Use of Theatrical Smoke Equipment: Look Solutions Viper NT</u>, prepared by ENVIRON International Corporation for Look Solutions, August 2006.

TIME-AND-DISTANCE GUIDELINES Viper NT with Regular-Fog Fluid									
Release Duration		Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m³)							
(secs)	Machine Setting	5 ft	10 ft	15 ft	20 ft	25 ft			
5	90%	30	0	0	0	0			
15	90%	50	50	50	50	0			
30	90%	50	50	50	50	30			
45*	90%*	>300	>300	>300	>300	290			
5	75%	0	0	0	0	0			
15	75%	0	0	0	0	0			
30	75%	0	0	0	0	0			
60*	75%*	>300	>300	>300	>300	290			
120*	75%*	>300	>300	>300	>300	>300			
5	50%	0	0	0	0	0			
15	50%	0	0	0	0	0			
30	50%	0	0	0	0	0			
60*	50%*	>120	>120	>120	>120	>120			
120*	50%*	>200	>200	>200	>200	>200			

Note: *At this high machine setting and/or release duration, production-specific testing is recommended

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Tiny FX with Tiny Fluid, Tiny S with Tiny Fluid, Viper NT with Slow-Fog Fluid, Viper NT with Regular-Fog Fluid, and Unique 2.1 with Unique Fluid, prepared by ENVIRON International Corporation for Look Solutions USA, Ltd., February 2014.</u>

TIME-AND-DISTANCE GUIDELINES Viper NT with Slow-Fog Fluid								
Release Duration		Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m³)						
(secs)	Machine Setting	3 ft	9 ft	15 ft	21 ft	27 ft		
5	99%	80	80	80	80	80		
15	99%	110	110	110	110	110		
30	99%	110	110	110	110	110		
5	75%	50	50	50	0	0		
15	75%	50	50	0	0	0		
30	75%	50	50	0	0	0		
60	75%	50	50	0	0	0		
120	75%	50	50	0	0	0		
15	50%	0	0	0	0	0		
30	50%	0	0	0	0	0		
60	50%	0	0	0	0	0		

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Tiny FX with Tiny Fluid, Tiny S with Tiny Fluid, Viper NT with Slow-Fog Fluid, Viper NT with Regular-Fog Fluid, and Unique 2.1 with Unique Fluid, prepared by ENVIRON International Corporation for Look Solutions USA, Ltd., February 2014.</u>

	TIME AND DISTANCE GUIDELINES K-1 with Froggy's Fog K-razy Haze Fluid							
Release Duration	Time (in sec)	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m³)						
(secs)	Machine S	Setting	3 ft	5 ft	7 ft	10 ft	15 ft	
30	Fan 100	100%	0	0	0	0	0	
60	Fan 100	100%	0	0	0	0	0	
120	Fan 100	100%	0	0	0	0	0	
30	Fan 100	65%	0	0	0	0	0	
60	Fan 100	65%	0	0	0	0	0	
120	Fan 100	65%	0	0	0	0	0	
30	Fan 100	25%	0	0	0	0	0	
60	Fan 100	25%	0	0	0	0	0	
120	Fan 100	25%	0	0	0	0	0	
30	Fan 50	65%	0	0	0	0	0	
60	Fan 50	65%	0	0	0	0	0	
120	Fan 50	65%	0	0	0	0	0	
30	Fan 50	25%	0	0	0	0	0	
60	Fan 50	25%	0	0	0	0	0	
120	Fan 50	25%	0	0	0	0	0	
30	Fan 10	65%	0	0	0	0	0	
60	Fan 10	65%	0	0	0	0	0	
120	Fan 10	65%	0	0	0	0	0	
30	Fan 10	25%	0	0	0	0	0	
60	Fan 10	25%	0	0	0	0	0	
120	Fan 10	25%	0	0	0	0	0	

^{*}All fan speeds and output settings approximate. DMX controller was used during testing.

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Bog Fog/K-razy Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke FR, Velocity/Cryo Freeze/Quick Blast/Training Smoke Q, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice 2009 Formula, Light Fog, prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.</u>



TIME-AND-DISTANCE GUIDELINES Magnum 2000								
Fluid	Release Duration	Machine Setting		sec) After ' elow Guida				
	(secs)	Jetting	5-8 ft	10-12 ft	15-16 ft	20 ft	25 ft	
	5	Max	60	60	60	50	50	
	15	Max	70	70	60	50	50	
	30 [†]	Max	70	70	60	50	50	
Froggy's Fog	30 [‡]	Mid	60	60	10	0	0	
Backwood Bay Fluid	60 [‡]	Mid	70	70	70	0	0	
	†Machine tu	at minimum rned off 17 s rned on and	econds into					
	5	Max	80	60	60	60	60	
	15	Max	80	70	70	70	60	
Froggy's Fog Bog	30 [†]	Max	140	140	70	70	60	
	5	Mid	60	60	60	40	0	
Fog Fluid	15	Mid	60	60	60	40	0	
	30 [†]	Mid	60	60	60	40	0	
	* No output at minimum setting. †Machine turned off 18 seconds into run.							
	30	Max	20	20	20	0	0	
	60 [†]	Max	20	20	20	10	10	
	120 [†]	Max	30	30	30	10	10	
Froggy's Fog	30 [†]	Mid	20	20	20	0	0	
Velocity Fluid	60 [†]	Mid	20	20	20	0	0	
	120 [†]	Mid	20	20	20	0	0	
	II -	at minimum	_	S.				
	30	Max	20	20	20	0	0	
	60 [†]	Max	20	20	20	10	10	
	120 [†]	Max	30	30	30	10	10	
Froggy's Fog Cryo	30 [†]	Mid	20	20	20	0	0	
Freeze Fluid	60 [†]	Mid	20	20	20	0	0	
	120 [†]	Mid	20	20	20	0	0	
		at minimum	_	S.				

TIME-AND-DISTANCE GUIDELINES Magnum 2000								
Fluid	Release Duration	Machine	Time (in sec) After Which Air Concentratio Below Guidance Level (40 mg/m³)					
	(secs)	Setting	5-8 ft	10-12 ft	15-16 ft	20 ft	25 ft	
	30	Max	20	20	20	0	0	
	60 [†]	Max	20	20	20	10	10	
	120 [†]	Max	30	30	30	10	10	
Froggy's Fog Quick	30 [†]	Mid	20	20	20	0	0	
Blast Fluid	60 [†]	Mid	20	20	20	0	0	
	120 [†]	Mid	20	20	20	0	0	
	l. •	at minimum	J	S.				

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Bog Fog/K-razy Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke FR, Velocity/Cryo Freeze/Quick Blast/Training Smoke Q, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice 2009 Formula, Light Fog, prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.</u>

	TIME-AND-DISTANCE GUIDELINES ZR-33							
Fluid	Release Duration	Machine	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m³)					
	(secs)	Setting	5-8 ft	10-12 ft	15-16 ft	20 ft	25 ft	
	5	10	20	20	0	0	0	
	15	10	20	20	10	0	0	
	30	10	20	20	10	0	0	
	30	6.5	20	10	0	0	0	
Froggy's Fog Velocity Fluid	60*	6.5	20	10	0	0	0	
velocity i idid	120*	6.5	20	20	0	0	0	
	60*	2.5	10	0	0	0	0	
	120*	2.5	20	20	0	0	0	
	*Machine had reduced output volume after 30 seconds.							
	5	10	20	20	0	0	0	
	15	10	20	20	10	0	0	
	30	10	20	20	10	0	0	
	30	6.5	20	10	0	0	0	
Froggy's Fog Cryo Freeze Fluid	60*	6.5	20	10	0	0	0	
	120*	6.5	20	20	0	0	0	
	60*	2.5	10	0	0	0	0	
	120*	2.5	20	20	0	0	0	
	*Machine had	reduced outp	ut volume a	fter 30 seco	nds.			
	5	10	20	20	0	0	0	
	15	10	20	20	10	0	0	
	30	10	20	20	10	0	0	
	30	6.5	20	10	0	0	0	
Froggy's Fog Quick Blast Fluid	60*	6.5	20	10	0	0	0	
Zaiok Biast Haid	120*	6.5	20	20	0	0	0	
	60*	2.5	10	0	0	0	0	
	120*	2.5	20	20	0	0	0	
	*Machine had	reduced outp	out volume a	fter 30 seco	nds			

Reference: Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Bog Fog/K-razy Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke FR, Velocity/Cryo Freeze/Quick Blast/Training Smoke Q, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice 2009 Formula, Light Fog, prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.

Updated: July 9, 2015

Fluid Release Duration (secs) Machine Setting Time (in sec) After Which Air Concentration Guidance Level (40 mg/m³))
Secs S-8 ft 10-12 ft 15-16 ft 20 ft	0 30 40 40 40
Froggy's Fog Backwood Bay Fluid 15 10 50 40 30 20 30 10 60 60 60 40 40 40 60 7 60 60 60 40 40 60 3 30 10 60 60 40 60 40 60 3 30 10 0 0 0 120 3 110 20 0 0 0 *Machine had reduced output volume after 75 seconds.	30 40 40 40
Froggy's Fog Backwood Bay Fluid 120* 7 60 60 60 40 40 120 7 110 60 60 40 40 60 7 60 60 60 40 60 60 60 60 60 60 60 60 60 60 60 60 60	40 40 40
Froggy's Fog Backwood Bay Fluid 120* 7 60 60 60 40 40 60 3 30 10 0 0 120 3 110 20 0 0 140 120 120 120 130 130 30 30 20 0 10 120 120 120 120 120 120 120 12	40 40
Backwood Bay Fluid 120* 7 60 60 60 40 40 60 3 30 10 0 0 120 3 110 20 0 0 0 *Machine had reduced output volume after 75 seconds.	40
Backwood Bay 60 7 60 60 60 40 Fluid 120* 7 110 60 60 40 60 3 30 10 0 0 120 3 110 20 0 0 *Machine had reduced output volume after 75 seconds. 5 10 30 30 20 0	
Fluid 120* 7 110 60 60 40 60 3 30 10 0 0 120 3 110 20 0 0 *Machine had reduced output volume after 75 seconds. 5 10 30 30 20 0	40
120 3 110 20 0 0 *Machine had reduced output volume after 75 seconds. 5 10 30 30 20 0	
120 3 110 20 0 0 *Machine had reduced output volume after 75 seconds. 5 10 30 30 20 0	0
*Machine had reduced output volume after 75 seconds. 5 10 30 30 20 0	0
5 10 30 30 20 0	
	0
15 10 50 50 20 20	0
30 10 60 60 40 30	20
30 7 50 50 40 30	20
Froggy's Fog 60* 7 50 50 40 30	20
Bog Fog Fluid 120* 7 60 50 40 30	20
60 3 50 50 30 0	0
120 3 60 50 30 0	0
*Machine had reduced output volume after 45 seconds	
30 10 20 10 10 0	0
60* 10 20 10 10 0	0
120* 10 20 10 10 0	0
30 7 20 10 10 0	0
Froggy's Fog 60 7 20 10 10 0	0
Velocity Fluid 120† 7 20 10 10 0	0
60 3 10 0 0	0
120 3 10 0 0	0
*Machine had reduced output volume after 45 seconds †Machine output volume reduced gradually throughout run	
30 10 20 10 10 0	0
60* 10 20 10 10 0	0
120* 10 20 10 10 0	0
30 7 20 10 10 0	0
Froggy's Fog 60 7 20 10 10 0	0
Cryo Freeze 120 [†] 7 20 10 10 0	0
Fluid 60 3 10 0 0 0	0
120 3 60 50 30 0	0
*Machine had reduced output volume after 45 seconds †Machine output volume reduced gradually throughout run	•
30 10 20 10 10 0	0
Froggy's Fog 60* 10 20 10 10 0	0
Quick Blast 120* 10 20 10 10 0	0
Fluid 30 7 20 10 10 0	0

TIME-AND-DISTANCE GUIDELINES ZR-44								
Fluid	Release Duration	Guidance Level (40 mg/m³)				Are Below		
	(secs)	Setting	5-8 ft	10-12 ft	15-16 ft	20 ft	25 ft	
	60	7	20	10	10	0	0	
	120 [†]	7	20 10 10 0 0					
	60	3	10	0	0	0	0	
	120	3	3 60 50 30 0 0					
	*Machine had reduced output volume after 45 seconds †Machine output volume reduced gradually throughout run							

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Bog Fog/K-razy Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke FR, Velocity/Cryo Freeze/Quick Blast/Training Smoke Q, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice 2009 Formula, Light Fog, prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.</u>



MDG FOG GENERATORS

TIME-AND-DISTANCE GUIDELINES MDG Atmosphere APS with Neutral Fluid							
Release	Time (in s	Time (in sec) After Which Air Concentrations Are Below Guidance Level (25 mg/m³)					
Duration (sec)	3 ft	6 ft	9 ft	12 ft	15 ft	18 ft	
40	190	190	120	0	0	0	

Note: The MDG Atmosphere can be used in a "cycle cuing" mode, alternating between 40 seconds on and 100 seconds off at distances of 12 feet or further from the release point. Multiple machines can be run simultaneously provided they are at least 12 feet apart.

Reference: <u>Equipment-Based Guidelines for the Use of Theatrical Smoke and Haze</u>, prepared by ENVIRON International Corporation for the Equity-League Pension and Health Trust Funds, June 8, 2001.

TIME-AND-DISTANCE GUIDELINES MDG MAX 3000 APS with Neutral Fluid							
Release Duration	Time (in sec) After Which Air Concentrations Are Below Guidance Level (25 mg/m³)						
(sec)	3 ft	3 ft 6 ft 9 ft 12 ft 15 ft 18 ft					
40	100						

Reference: <u>Equipment-Based Guidelines for the Use of Theatrical Smoke and Haze</u>, prepared by ENVIRON International Corporation for the Equity-League Pension and Health Trust Funds, June 8, 2001.

TIME-AND-DISTANCE GUIDELINES MDG Mini Max with Dense Fluid							
Release Duration	Machine Setting Time (in sec) After Which Air Concentrations and Guidance Level (40 mg/m³)						Below
(sec)	Setting	3 ft	6 ft	9 ft	12 ft	15 ft	18 ft
15	Full	150	80	50	0	0	0
15	15 Medium		40	40	0	0	0

Reference: <u>Equipment-Based Guidelines for the Use of Theatrical Smoke and Haze</u>, prepared by ENVIRON International Corporation for the Equity-League Pension and Health Trust Funds, June 8, 2001.

NEW RULE FX

	TIME-AND-DISTANCE GUIDELINES Electronic Actor Cigarette Prop with Cartridge Fluid						
Strength of "drag"	Speed of exhale	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m³) at a distance of 1 ft.					
Weak	Medium	0					
Medium	Medium	0					
Strong	Medium	10					
Medium	Slow	0					
Medium	Fast	0					
Strong	Slow	0					
Strong	Fast	30					

Note: Testing of e-cigarette and related products is limited to second hand exposure after being exhaled by the user; the initial amount inhaled directly from the product was not measured.

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: New Rule FX Electronic Actor Cigarette Prop with Cartridge Fluid</u>, prepared by ENVIRON International Corporation for New Rule Productions Inc. and Foresight Theatrical, October 2014.

PURE SMOKE

TIME-AND-DISTANCE GUIDELINES Pure Smoke Electronic Cigarette / Electronic Cigarette Flavors							
# of "drags" on electronic cigarette before exhalation Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m³) at a distance of 1 ft.							
1	0						
2	0						
3	3						

Notes: It should be noted that ENVIRON's testing was limited to glycols and glycerol. According to the manufacturer, these props also contain between 11 and 18 milligrams of nicotine. Potential health effects associated with potential exposures to nicotine are not within the scope of ENVIRON's review.

Testing of e-cigarette and related products is limited to second hand exposure after being exhaled by the user; the initial amount inhaled directly from the product was not measured.

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Pure Smoke Electronic Cigarette with Electronic Cigarette Flavors</u>, prepared by ENVIRON International Corporation for Clear Day Broadway LLC, January 2012.

REEL EFX, INC.

TIME-AND-DISTANCE GUIDELINES DF-50										
Fluid	Release Duration	Time	Time (in sec) After Which Air Concentrations Are Below Guidance Level (25 mg/m ³)							
	(sec)	3 ft 5-6 ft 7 ft 9-10 ft 12 ft 15 ft 18 ft								
Diffusion Fluid	40	0	0	-	0	0	0	0		
	5	10	0	0	0	-	0	-		
Froggy's Fog	15	10	0	0	0	-	0	-		
DaFiddy Fluid –	30	10	10	0	0	ı	0	-		
Oil Based Haze	60	10	10	0	0	- 1	0	-		
	120	10	10	0	0	-	0	-		

Note: The DF-50 can be used in a "cycle cuing" mode, alternating between 40 seconds on and 100 seconds off at all distances from the release point.

References: <u>Equipment-Based Guidelines for the Use of Theatrical Smoke and Haze</u>, prepared by ENVIRON International Corporation for the Equity-League Pension and Health Trust Funds, June 8, 2001. <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Bog Fog/K-razy Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke FR, Velocity/Cryo Freeze/Quick Blast/Training Smoke Q, Techno Fog/Beam Splitter, Neutronic Haze, <u>DaFiddy, Swamp Juice 2009 Formula, Light Fog</u>, prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.</u>



ROBE LIGHTING S.R.O

	TI	ME-AND-DI Robe	STANCE GU Fog 1550 I		5							
	Machine	Release		sec) After	r Which A	ir Concent	rations					
Fluid	Setting	Duration		elow Guid		1						
		(sec)	5 ft	10 ft	15 ft	20 ft	25 ft					
	100%	5	40	40	40	40	0					
	100%	15	70	70	70	50	40					
	100%	30	70	70	70	50	40					
Froggy's Fog	65%	30	50	40	40	40	0					
Backwood Bay	65% 65%	60 120*	70 70	70 70	40 40	40 40	0					
Fluid												
	25% 25%	60 120	60 60	50 50	30 30	0	0					
							· ·					
	*Machine ran for 37 second	ls during run	· 			T						
	100%	5	40	40	40	40	0					
	100%	15 30	70	70 70	70 70	50	40					
	100%		70			50	40					
Froggy's Fog	65% 65%	30 60	50 70	40 70	40 40	40	0					
Amusement Park	65%	120*	70	70	40	40	0					
Fluid	25%	60	60	50	30							
	25%	120	60	50	30	0	0					
		*Machine ran at reduced output volume after 45 seconds, machine turned off										
	for 37 second					1	ned on					
	100%	5	40	30	0	0	0					
	100%	15	50	30	0	0	0					
	100%	30	80	80	70	30	0					
	65%	30	80	60	50	0	0					
Froggy's Fog Bog	65%	60*	80	60	50	30	10					
Fog Fluid	65%	120*	80	60	50	30	10					
	25%	60	80	40	0	0	0					
	25%	120 [†]	80	40	0	0	0					
	*Machine run †Machine run											
	100%	5	0	0	0	0	0					
	100%	15	20	0	0	0	0					
	100%	30*	20	20	0	0	0					
	65%	30	20	10	0	0	0					
Froggy's Fog	65%	60	20	10	0	0	0					
Velocity Fluid	65%	120	20	10	0	0	0					
	25%	60	0	0	0	0	0					
	25%	120	0	0	0	0	0					
	*Machine ran						U					
	100%	5	0	0	0	0	0					
							0					
Froggy's Fog	100%	15	20	0	0	0	0					
Cryo Freeze Fluid	100%	30*	20	20	0	0	0					
	65%	30	20	10	0	0	0					
	65%	60	20	10	0	0	0					

ROBE LIGHTING S.R.O

	TIME-AND-DISTANCE GUIDELINES Robe Fog 1550 FT										
Fluid	Machine Setting	Release Duration	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m³)								
	Setting	(sec)	5 ft	10 ft	15 ft	20 ft	25 ft				
	65%	120	20	10	0	0	0				
	25%	60	0	0	0	0	0				
	25%	120	0	0	0	0	0				
	*Machine ran	*Machine ran at reduced output volume after 20 seconds									
	100%	5	0	0	0	0	0				
	100%	15	20	0	0	0	0				
	100%	30*	20	20	0	0	0				
- , -	65%	30	20	10	0	0	0				
Froggy's Fog	65%	60	20	10	0	0	0				
Quick Blast Fluid	65%	120	20	10	0	0	0				
	25%	60	0	0	0	0	0				
	25%	120	0	0	0	0	0				
	*Machine ran	at reduced o	output volum	ne after 20	seconds						

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Bog Fog/K-razy Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke FR, Velocity/Cryo Freeze/Quick Blast/Training Smoke Q, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice 2009 Formula, Light Fog, prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.</u>

TIME-AND-DISTANCE GUIDELINES Rosco Model 1500/1600										
Fluid	Machine	Release Duration	_	in sec) At Below G				ons Are		
	Setting	(sec)	3 ft	6 ft	9 ft	12 ft	15 ft	18 ft		
Rosco Clear Fog	Full	15	230	150	60	0	0	0		
Fluid	Medium	15	230	70	60	0	0	0		
Deces For Fluid	Full	15	170	100	80	40	40	40		
Rosco Fog Fluid	Medium	15	170	100	80	40	40	40		
Rosco Light Fog	Full	15	150	70	70	70	60	50		
Fluid	Medium	15	150	50	50	50	50	50		
Rosco Stage &	Full	15	80	80	50	40	40	40		
Studio Fluid	Medium	15	80	80	40	30	30	30		

Reference: <u>Equipment-Based Guidelines for the Use of Theatrical Smoke and Haze</u>, prepared by ENVIRON International Corporation for the Equity-League Pension and Health Trust Funds, June 8, 2001.

		TIME-AI	ND-DISTA Rosco Mo	NCE GUID	ELINES			
Fluid	Machine	Release Duration		sec) Afte	r Which A lance Leve		rations Ar /m³)	e Below
	Setting	(secs)	3 ft	6 ft	9 ft	12 ft	15 ft	18 ft
	100%	5	45	45	30	10	0	0
		15	45	45	45	45	35	20
		30	50	45	45	45	40	30
	60%	5	60	60	60	0	0	0
Rosco Fog		15	60	60	60	50	10	0
Fluid		30	70	70	70	70	10	0
	30%	15	25	0	0	0	0	0
		30	30	30	0	0	0	0
		60	40	30	5	0	0	0
		180	40	30	5	0	0	0
	100%	15	25	25	20	15	0	0
		30	25	25	25	20	20	0
		45	30	30	30	30	20	0
Rosco Stage	60%	15	15	15	10	10	0	0
& Studio		30	20	20	20	12	0	0
Fluid		45	35	35	35	20	0	0
	30%	15	10	5	0	0	0	0
		30	10	5	0	0	0	0
		45	20	5	0	0	0	0

Reference: <u>Development of Time-And-Distance Guidelines for Use of Theatrical Smoke Equipment: Rosco Model 1750, prepared by ENVIRON International Corporation for Rosco Laboratories, August 2006.</u>

TIME-AND-DISTANCE GUIDELINES Rosco Alpha 900									
Fluid Release Duration Setting Release Duration Release Duration Below Guidance Level (40 mg/m³) 2.51 (50 mg/m²)									
	Setting	(sec) 3 ft 6 ft 9 ft 12 ft 15 ft							
Rosco Fog Fluid	On	15 220 220 180 180 160 110							
Rosco Stage & Studio Fluid	On	15	140	140	140	130	50	30	

Reference: <u>Equipment-Based Guidelines for the Use of Theatrical Smoke and Haze</u>, prepared by ENVIRON International Corporation for the Equity-League Pension and Health Trust Funds, June 8, 2001.

ROSCO LABORATORIES

	TIME-AND-DISTANCE GUIDELINES Rosco Delta 3000 (100% and 50% Settings)									
Fluid	Machine	Release Duration		•	After Wh Guidance			_		
	Setting	(sec)	5 ft	10 ft	15 ft	20 ft	25 ft	30 ft		
Dagge Class Fam Fluid	100%	30	215	215	215	215	215	115		
Rosco Clear Fog Fluid	50%	30	88	88	88	88	88	70		
Deces For Fluid	100%	30	157	157	157	87	87	87		
Rosco Fog Fluid	50%	30	94	94	94	57	56	44		
Doggo Light Fog Fluid	100%	30	63	63	63	53	53	53		
Rosco Light Fog Fluid	50%	30	60	10	0	0	0	0		
Rosco Stage & Studio	100%	30	53	53	53	53	53	53		
Fluid	50%	30	50	33	33	28	28	23		

Reference: <u>Development of Time-and-Distance Guidelines For Use Of Theatrical Smoke Equipment: Rosco Delta 3000</u>, prepared by ENVIRON International Corporation for Rosco Laboratories, May 2004

TIME-AND-DISTANCE GUIDELINES Rosco Delta 3000 (10% Setting)									
Fluid	Setting (sec) Level (40 mg/m³)								
		(Sec)	3 ft	6 ft	9 ft	12 ft	18 ft		
Rosco Clear Fog Fluid	10%	60	130	130	130	130	73		
Rosco Fog Fluid	10%	60	58	0	58	58	0		
Rosco Light Fog Fluid	10%	60	30	0	0	0	0		
Rosco Stage & Studio Fluid	10%	60	63	13	13	13	0		

Reference: <u>Development of Time-and-Distance Guidelines For Use Of Theatrical Smoke Equipment: Rosco Delta 3000</u>, prepared by ENVIRON International Corporation for Rosco Laboratories, May 2004



	TIME-AND-DISTANCE GUIDELINES Rosco Delta Hazer with Delta Hazer Fluid								
Release Duration	Time (in sec) Afte	er Whic		entration mg/m³)	s Are Bel	ow Guidar	nce Level		
(secs)	Machine Setting	3 ft	6 ft	12 ft	15 ft	21 ft	27 ft		
30	100	0	0	0	0	0	0		
60		0	0	0	0	0	0		
300		0	0	0	0	0	0		
600		0	0	0	0	0	0		
30	50	0	0	0	0	0	0		
60		0	0	0	0	0	0		
300		0	0	0	0	0	0		
600		Х	X	X	Χ	Х	Х		
60	30	0	0	0	0	0	0		
300		Х	Х	Х	Х	Х	Х		
600		Х	Х	Х	Х	Х	Х		

Note: X = not tested, but results are expected to be comparable to those at the 100% machine setting.

Reference: <u>Development of Time-And-Distance Guidelines for Use of Theatrical Smoke Equipment: Rosco Delta Hazer,</u> prepared by ENVIRON International Corporation for Rosco Laboratories, August 2006

	TIME-AND-DISTANCE GUIDELINES Mini-V with Rosco Fog Fluid										
Release Duration		Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m³)									
(secs)	Machine Setting										
S5	On	40	0	0	0	0					
15	On	80	30	0	0	0					
30	On	80	30	0	0	0					
60	On	80	40	0	0	0					
120	On	80	40	0	0	0					

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Vapour with Rosco Stage & Studio Fluid, Vapour with Rosco Fog Fluid, Vapour Plus with Rosco Stage & Studio Fluid, Vapour Plus with Rosco Fog Fluid, Mini-V with Rosco Stage & Studio Fluid, Mini-V with Rosco Fog Fluid, and V-Hazer with V-Hazer Fluid, prepared by ENVIRON International Corporation for Rosco Laboratories, May 2014.</u>

	TIME-AND-DISTANCE GUIDELINES Mini-V with Rosco Stage and Studio Fluid									
Release Duration	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m³)									
(secs)	Machine Setting	8 ft	11 ft	15 ft	20 ft	25 ft				
5	On	15	0	0	0	0				
10	On	15	15	0	0	0				
30	On	15	15	0	0	0				
60	On	15	15	0	0	0				
120	On	20	15	0	0	0				

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Vapour with Rosco Stage & Studio Fluid, Vapour with Rosco Fog Fluid, Vapour Plus with Rosco Stage & Studio Fluid, Vapour Plus with Rosco Fog Fluid, Mini-V with Rosco Stage & Studio Fluid, Mini-V with Rosco Fog Fluid, and V-Hazer with V-Hazer Fluid, prepared by ENVIRON International Corporation for Rosco Laboratories, May 2014.</u>

TIME-AND-DISTANCE GUIDELINES Rosco PF-1000											
Fluid	Machine	Release Duration						ons Are			
	Setting	(sec)	3 ft	6 ft	9 ft	12 ft	15 ft	18 ft			
Deces For Fluid	Full	15	60	40	0	0	0	0			
Rosco Fog Fluid	Medium	15	60	0	0	0	0	0			
Rosco Stage & Studio Fluid	Full	15	100	70	60	60	0	0			
	Medium	15	100	70	0	0	0	0			

Reference: <u>Equipment-Based Guidelines for the Use of Theatrical Smoke and Haze</u>, prepared by ENVIRON International Corporation for the Equity-League Pension and Health Trust Funds, June 8, 2001.

	TIME-AND-D V-Hazer v	ISTANCE with V-Ha		NES		
Release Duration		Guidance	Level (40	mg/m³)		
(secs)	Machine Setting	5 ft	10 ft	15 ft	20 ft	25 ft
5	100%	0	0	0	0	0
10	100%	0	0	0	0	0
30	100%	0	0	0	0	0
60	100%	0	0	0	0	0
120	100%	0	0	0	0	0
5	75%	0	0	0	0	0
10	75%	0	0	0	0	0
30	75%	0	0	0	0	0
60	75%	0	0	0	0	0
120	75%	0	0	0	0	0
5	50%	0	0	0	0	0
10	50%	0	0	0	0	0
30	50%	0	0	0	0	0
60	50%	0	0	0	0	0
120	50%	0	0	0	0	0
5	25%	0	0	0	0	0
10	25%	0	0	0	0	0
30	25%	0	0	0	0	0
60	25%	0	0	0	0	0
120	25%	0	0	0	0	0

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Vapour with Rosco Stage & Studio Fluid, Vapour with Rosco Fog Fluid, Vapour Plus with Rosco Stage & Studio Fluid, Vapour Plus with Rosco Fog Fluid, Mini-V with Rosco Stage & Studio Fluid, Mini-V with Rosco Fog Fluid, and V-Hazer with V-Hazer Fluid, prepared by ENVIRON International Corporation for Rosco Laboratories, May 2014.</u>

		ID-DISTA ur with R									
Release Duration	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m³)										
(secs)	Machine Setting	5 ft	8 ft	10-12 ft	15-16 ft	20 ft	25 ft				
5	100%	-	80	40	0	0	0				
15	100%	=	80	40	0	0	0				
30	100%	-	80	40	0	0	0				
60	100%	-	80	40	10	0	0				
5	75%	-	50	50	0	0	0				
15	75%	-	60	50	0	0	0				
30	75%	-	60	50	0	0	0				
60	75%	-	90	50	30	10	0				
5	50%	60	-	50	0	0	0				
15	50%	60	-	50	0	0	0				
30	50%	60	-	50	0	0	0				
60	50%	60	-	50	20	0	0				
120	50%	-	10	0	0	0	0				
5	25%	50	-	0	0	0	0				
15	25%	50	-	0	0	0	0				
30	25%	60	-	0	0	0	0				
60	25%	60	-	0	0	0	0				
120	25%	60	-	0	0	0	0				

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Vapour with Rosco Stage & Studio Fluid, Vapour with Rosco Fog Fluid, Vapour Plus with Rosco Stage & Studio Fluid, Vapour Plus with Rosco Fog Fluid, Mini-V with Rosco Fog Fluid, and V-Hazer with V-Hazer Fluid, prepared by ENVIRON International Corporation for Rosco Laboratories, May 2014.</u>

	TIME-AND-D Vapour with Ros					
Release Duration	Time (in sec)		ch Air Cor Level (40		ns Are Be	low
(secs)	Machine Setting	8 ft	11 ft	15 ft	20 ft	25 ft
5	100%	10	10	10	0	0
10	100%	15	10	10	0	0
30	100%	15	10	10	0	0
60	100%	25	10	10	0	0
120	100%	30	10	10	0	0
5	75%	10	0	0	0	0
10	75%	15	10	0	0	0
30	75%	15	10	0	0	0
60	75%	15	10	0	0	0
120	75%	30	10	0	0	0
5	50%	10	0	0	0	0
10	50%	15	0	0	0	0
30	50%	15	0	0	0	0
60	50%	15	0	0	0	0
120	50%	20	0	0	0	0
5	25%	0	0	0	0	0
10	25%	10	0	0	0	0
30	25%	10	0	0	0	0
60	25%	15	0	0	0	0
120	25%	15	0	0	0	0

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Vapour with Rosco Stage & Studio Fluid, Vapour with Rosco Fog Fluid, Vapour Plus with Rosco Stage & Studio Fluid, Vapour Plus with Rosco Fog Fluid, Mini-V with Rosco Stage & Studio Fluid, Mini-V with Rosco Fog Fluid, and V-Hazer with V-Hazer Fluid, prepared by ENVIRON International Corporation for Rosco Laboratories, May 2014.</u>

		ID-DISTA Plus with					
Release Duration	Time (in sec) Afte			ntrations	Are Belov	v Guidanc	e Level
(secs)	Machine Setting	5 ft	8 ft	12 ft	16 ft	20 ft	25 ft
5	100%	-	80	80	80	80	70
15	100%	-	100	100	100	100	70
30	100%	-	100	100	100	100	90
60	100%	-	180	100	100	100	90
5	75%	-	70	70	60	40	10
15	75%	-	100	100	100	100	50
30	75%	-	100	100	100	100	90
60	75%	-	100	100	100	100	90
5	50%	70	-	50	0	0	0
15	50%	70	-	50	30	0	0
30	50%	70	-	50	30	0	0
60	50%	90	-	50	30	0	0
5	25%	0	-	0	0	0	0
15	25%	0	-	0	0	0	0
30	25%	0	-	0	0	0	0
60	25%	0	-	0	0	0	0

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Vapour with Rosco Stage & Studio Fluid, Vapour with Rosco Fog Fluid, Vapour Plus with Rosco Stage & Studio Fluid, Mini-V with Rosco Fog Fluid, Mini-V with Rosco Fog Fluid, and V-Hazer With V-Hazer Fluid, prepared by ENVIRON International Corporation for Rosco Laboratories, May 2014.</u>

	TIME-AND-D Vapour Plus with R					
Release Duration	Time (in sec)	After Which			ns Are Be	low
(secs)	Machine Setting	8 ft	11 ft	15 ft	20 ft	25 ft
5	100%	35	15	15	15	0
10	100%	35	20	15	15	0
30	100%	35	25	25	15	15
60	100%	35	30	30	30	30
120*	100%	240	240	160	160	105
5	75%	35	15	15	0	0
10	75%	35	20	15	10	0
30	75%	35	25	25	10	0
60	75%	35	30	30	25	25
120*	75%	240	240	160	160	105
5	50%	20	15	15	0	0
10	50%	20	15	15	10	0
30	50%	30	20	20	10	0
60	50%	35	30	30	15	15
120	50%	240	240	160	95	90
5	25%	20	0	0	0	0
10	25%	20	0	0	0	0
30	25%	20	0	0	0	0
60	25%	20	5	0	0	0
120	25%	45	5	0	0	0

 $^{^{\}star}$ Machine shut off two times for approximately 30 seconds total within the 120-second testing timespan

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Vapour with Rosco Stage & Studio Fluid, Vapour with Rosco Fog Fluid, Vapour Plus with Rosco Stage & Studio Fluid, Vapour Plus with Rosco Fog Fluid, Mini-V with Rosco Stage & Studio Fluid, Mini-V with Rosco Fog Fluid, and V-Hazer with V-Hazer Fluid, prepared by ENVIRON International Corporation for Rosco Laboratories, May 2014.</u>

SMOKE IN STYLE

Smol		D-DISTANCE GUIDELINES lic Pipe Prop with FeelLife E-Liquid Fluid
Strength of Drag	Speed of Exhale	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m³) at a distance of 1 ft.
Weak	Slow	0
Weak	Medium	0
Weak	Fast	0
Medium	Slow	0
Medium	Medium	0
Medium	Fast	80
Strong	Slow	0
Strong	Medium	0
Strong	Fast	80

Notes: It should be noted that ENVIRON's testing was limited to glycols and glycerol. According to the manufacturer, these props also contain between 0 and 16 milligrams of nicotine. Potential health effects associated with potential exposures to nicotine are not within the scope of ENVIRON's review.

Testing of e-cigarette and related products is limited to second hand exposure after being exhaled by the user; the initial amount inhaled directly from the product was not measured.

Reference: Environmental Testing of Theatrical Equipment: Smoke In Style Electronic Pipe Prop with FeelLife E-Liquid, prepared by Ramboll Environ US Corporation the Oregon Shakespeare Festival, May 2015.

ULTRATEC SPECIAL EFFECTS

TIME-AND-DISTANCE GUIDELINES Ultratec Special Effects G100											
Fluid	Machine	Release Duration	_	_	n sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m³)						
	Setting	(sec)	3 ft	6 ft	9 ft	12 ft	15 ft	18 ft			
Extra Quick Dissipating Fluid	On	15	100	40	40	40	30	30			
Quick Dissipating Fluid	On	15	150	150	40	40	30	30			
Director's Choice Fluid	On	15	150	30	30	0	0	0			

Reference: <u>Equipment-Based Guidelines for the Use of Theatrical Smoke and Haze</u>, prepared by ENVIRON International Corporation for the Equity-League Pension and Health Trust Funds, June 8, 2001.

TIME-AND-DISTANCE GUIDELINES Ultratec Special Effects G150											
Fluid	Machine	Release Duration	Time (•	fter Whic uidance l			ons Are			
	Setting	(sec)	3 ft	6 ft	9 ft	12 ft	15 ft	18 ft			
Extra Quick Dissipating Fluid	Full	15	50	40	40	30	30	30			
	Medium	15	50	0	0	0	0	0			
Molecular Fog	Full	15	90	50	40	0	0	0			
Fluid	Medium	15	90	0	0	0	0	0			
Quick Dissipating	Full	15	60	60	40	0	0	0			
Fluid	Medium	15	60	0	0	0	0	0			
Director's Choice	Full	15	110	80	70	70	0	0			
Fluid	Medium	15	60	50	50	0	0	0			

References: <u>Equipment-Based Guidelines for the Use of Theatrical Smoke and Haze</u>, prepared by ENVIRON International Corporation for the Equity-League Pension and Health Trust Funds, June 8, 2001.



ULTRATEC SPECIAL EFFECTS

		TIME-	AND-DISTAN Ultratec		LINES					
Fluid	Release Duration	Machine Setting	Time (in se		nich Air Con e Level (40		Are Belov			
	(secs)	oottii ig	5 ft	10 ft	15 ft	20 ft	25 ft			
	15*	100%	90	90	90	30	0			
	30	100%	90	90	90	60	0			
	30	65%	50	50	50	0	0			
Froggy's Fog	60	65%	100	60	60	30	0			
Backwood Bay	120 [†]	65%	100	60	60	30	0			
Fluid	60	25%	100	60	30	30	0			
	120 [†]	25%	100	60	30	30	0			
			ds to release ed output vol	-	•	ed				
	15*	100%	90	90	90	30	0			
	30	100%	90	90	90	60	0			
	30	65%	50	50	50	0	0			
Froggy's Fog Amusement	60	65%	100	60	60	30	0			
	120 [†]	65%	100	60	60	30	0			
Park Fluid	60	25%	100	60	30	30	0			
	120 [†]	25%	100	60	30	30	0			
	*Machine takes 6 seconds to release fog after button is pressed † Machine runs at reduced output volume after 60 seconds									
	15*	100%	50	50	50	50	50			
	30	100%	60	60	60	60	60			
	30	65%	60	60	60	60	60			
	60	65%	70	70	60	60	60			
Froggy's Fog Bog Fog Fluid	120 [†]	65%	70	70	60	60	60			
bog r og r idid	60	25%	60	0	0	0	0			
	120 [†]	25%	60	0	0	0	0			
	*Machine takes 6 seconds to release fog after button is pressed † Machine runs at significantly reduced output volume after 80 seconds									
	15*	100%	30	30	0	0	0			
	30	100%	40	40	30	20	20			
	30	65%	30	20	0	0	0			
Englace de E	60	65%	30	30	0	0	0			
Froggy's Fog Velocity Fluid	120 [†]	65%	30	30	0	0	0			
volucity i lala	60	25%	30	0	0	0	0			
	120 [†]	25%	30	0	0	0	0			
			ds to release cantly reduce	-	•					
	15*	100%	30	30	0	0	0			
Froggy's Fog	30	100%	40	40	30	20	20			
Cryo Freeze	30	65%	30	20	0	0	0			
Fluid	60	65%	30	30	0	0	0			
	120 [†]	65%	30	30	0	0	0			



ULTRATEC SPECIAL EFFECTS

TIME-AND-DISTANCE GUIDELINES Ultratec G-3000										
Fluid	Release Duration	Machine Setting	Time (in se	ec) After Wh Guidance	nich Air Con e Level (40		Are Below			
	(secs)	Setting	5 ft	10 ft	15 ft	20 ft	25 ft			
	60	25%	30	0	0	0	0			
	120 [†]	25%	30	0	0	0	0			
	*Machine takes 6 seconds to release fog after button is pressed									
	† Machine ru	uns at signific	cantly reduce	ed output volu	ume after 80	seconds				
	15*	100%	30	30	0	0	0			
	30	100%	40	40	30	20	20			
	30	65%	30	20	0	0	0			
Froggy's Fog	60	65%	30	30	0	0	0			
Quick Blast	120 [†]	65%	30	30	0	0	0			
Fluid	60	25%	30	0	0	0	0			
	120 [†]	25%	30	0	0	0	0			
	II .			fog after but	•					
	^ı Machine rı	uns at signific	cantly reduce	d output volu	ume after 80	seconds				

References: Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Bog Fog/K-razy Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke FR, Velocity/Cryo Freeze/Quick Blast/Training Smoke Q, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice 2009 Formula, Light Fog, prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.

ULTRATEC SPECIAL EFFECTS

Updated: July 9, 2015

Ultratec S	TIME-AND-DISTANCE GUIDELINES Ultratec Special Effects LSG MKII-PFi9D with Molecular Fog Fluid										
Release Duration	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m³)										
(secs)	Machine Setting	3 ft	6 ft	12ft	18 ft	30 ft					
30	100	0	0	0	0	0					
60		0	0	0	0	0					
120		0	0	0	0	0					
300		0	0	0	0	0					
30	50	0	0	0	0	0					
60		0	0	0	0	0					
120		0	0	0	0	0					
300		Х	Х	Х	Х	Х					
30	10	0	0	0	0	0					
60		0	0	0	0	0					
120		0	0	0	0	0					
300		Х	Х	Х	Х	Х					

Note: X = not tested, but results are expected to be comparable to those at the 100% machine setting

Reference: <u>Development of Time-And-Distance Guidelines for Use of Theatrical Smoke Equipment: Le Maitre LSG-MKII with Power Fog Industrial 9D (PFi9D) Low Smoke Generator</u>, prepared by ENVIRON International Corporation for Le Maitre Special Effects, August 2006.

ULTRATEC SPECIAL EFFECTS

TIME-AND-DISTANCE GUIDELINES Ultratec Special Effects Radiance Hazer									
Fluid	Release Duration (secs)	Time (in sec) After Which Air Concentrations Are Below Guidance Level (50 mg/m³)							
		Fan speed/ Haze output	3-4 ft	6 ft	8-9 ft	12 ft	15-16 ft	18 ft	20 ft
Neutron/ Luminous 7 Haze Fluid	30	100/100	5	5	5	5	0	0	-
	60		10	10	10	10	10	0	-
	180		10	10	10	10	10	0	-
	300		10	10	10	10	10	0	-
	180	50/100	0	0	0	0	0	0	-
	300		Х	Х	Х	Х	Х	Х	-
Froggy's Fog Neutronic Haze Fluid	30	9/9	20	-	20	20	20	-	20
	60		20	ı	20	20	20	-	20
	120		30	-	30	30	30	-	30
	60	9/1	10	ı	0	0	0	-	0
	120		30	-	30	0	0	-	0
	30	5/9	20	ı	20	0	0	-	0
	60		40	ı	40	40	0	-	0
	120		40	-	40	40	0	-	0
	30	1/9	0	-	0	0	0	-	0
	60	., .	30	1	0	0	0	-	0
	120		30	-	0	0	0	-	0

Note: X = not tested, but results are expected to be comparable to those at the 180 second duration.

References: <u>Development of Time-And-Distance Guidelines for Use of Theatrical Smoke Equipment: Le Maitre Radiance Hazer</u>, prepared by ENVIRON International Corporation for Le Maitre Special Effects, August 2006. <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Bog Fog/K-razy Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke FR, Velocity/Cryo Freeze/Quick Blast/Training Smoke Q, Techno Fog/Beam Splitter, Neutronic Haze, <u>DaFiddy, Swamp Juice 2009 Formula, Light Fog</u>, prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.</u>

