Minutes
Fog and Smoke Working Group
Saturday, November 14, 1998
Hyatt Regency Hotel
Phoenix, AZ

Chairman: Larry Schoeneman; Interesting Products, Inc.
Recording secretary: Karl G. Ruling

Members attending: Gary Fails; City Theatrical, Inc.; Principal; Producer
Marc Gingras; MDG Fog Generators Ltd.; Principal; Producer
Eric Tishman; Rosco Laboratories; Principal; Producer
Nathan Kahn; Theatre Effects, Inc.; Principal; Producer
Adrian Segeren; Le Maitre Special Effects; Principal; Producer
Jim Gill; Reel EFX; Principal; Producer
Bill Hektner; USITT Health & Safety Commissioner; Principal; General interest
Brad Dittmer; Associated Theatrical Contractors; Principal; User
Mike Wood; High End Systems; Principal; Producer
F. Lee Iwanski; Four Star Lighting; Principal; User
Murray Gellatly; A.C. Lighting Ltd.; Principal; General interest
Gary Crawford; C.I.T.C.; Principal; Producer
James F. Foley; UCISCO, Inc.; Principal; Producer
Tim Cox; PLASA; Alternate; General interest (inducted at this meeting)

Visitors: Nissa Putnam, Theatre Effects
Jörg Pöhler, OTTEC - Nebelmaschinen

1 Opening remarks

Larry Schoeneman called the meeting to order at 7:04 p.m.

2 Attendance and membership

2.1 Introductions of those present

Those present introduced themselves.

2.2 Determination of quorum (5 needed)

Larry announced, "There is no question we have a quorum."

2.3 Recognition of alternate voting members

None were present at this point in the meeting.

2.4 Requirements for membership

If you miss two consecutive meetings, your status will be changed to observer, pending your return to the meetings.

2.5 Processing of new membership applications

Tim Cox applied as an alternate for Tony Douglas-Beveridge, representing PLASA.

Brad Dittmer moved that Cox's application be accepted. Lee Iwanski seconded the motion. Unanimous voice vote.

Larry Schoeneman also welcomed Gary Crawford back to the fog fold as a voting member. His status had been changed to observer because of absence, but per the policy set by the working group chair, was now reinstated because of his current attendance.

2.6 Processing of changes to observer status

None were done.

3 Approval of minutes from the previous meeting

Bill Hektner moved that the minutes be approved as written. Eric Tishman seconded the motion. Unanimous voice vote.

4 Approval of Agenda

Mike Wood moved that the agenda be accepted. Bill Hektner seconded the motion. Unanimous voice vote.

5 Call for patents:

Larry Schoeneman read the following statement:

"ESTA intends to publish no standard that contains protected intellectual property, unless that property can be licensed by anyone for a reasonable fee. ESTA uses a process of open patent disclosures to implement this intent. ESTA does not conduct patent searches and does not warrant that its standards contain no protected intellectual property.

"In keeping with the open disclosure policy, I ask if anyone present wishes to notify the working group of the existence of a patent or copyright that might protect material in a standard being developed by the working group. You need not be the holder of the patent or copyright in order to notify the working group of its existence. "

6 Anti-Trust Statement

Larry Schoeneman read the following statement:

"The ESTA Board of Directors, the Technical Standards Committee, and the leadership of this Working Group will reject or nullify any actions that restrain trade. Anyone who feels that an action restraining trade is being or has been taken is requested to bring the matter to the attention of the chair immediately. Anyone who feels that actions in restraint of trade have been taken and not properly annulled is requested to notify the TSC chair or ESTA president immediately."

"ESTA legal counsel has informed us that any member of this working group may be found individually liable for any action that restrains trade taken by this working group. An individual convicted of a violation of the Sherman Act may be fined as much as $100,000 and be imprisoned for up to three years. An easy to read pamphlet describing restraint of trade is available from the Technical Standards Committee."

7 Task Group Reports

7.1Fog standard E1.5

Eric Tishman moved that we accept the Environ proposal to help us evaluate the potential risk(s) associated with the use of glycol-based materials to create theatrical fogs. Brad Dittmer seconded the motion.

Eric Tishman offered the following statement in support of the Environ proposal, and to address a question posed by Karl Ruling as to why we were not putting the risk assessment to competitive bid:
"We are concerned about time. We are being watched to create the standard. For us to stop, write up an RFQ, send it out, and look at the responses, it will be at least the summer before we can move on this. Also this organization has unique experience in the field. This organization also has a formidable reputation."

Many offered the opinion that the fee quoted was also quite reasonable given the scope of the work and the potential benefits.

Motion passed on a show of hands with eleven in favor, none against, and one hand going up when asked for abstentions.

7.2 Fog machine instruction manual standard (Brad Dittmer & Lee Iwanski)

The comments offered on the recommendations for fog machine manuals were discussed.

It was decided not to include MSD sheets in the manuals for the fog machines. No one knows what fluid the user would actually put in a machine, and some fog machine manufacturers do not make or supply fluids. Thus, any MSDS offered in the machine manual might appear to cover the fluid being used, but, in fact, would not. It would thus be an ineffective and misleading hazard communication tool.

The consensus was also that the text from the introduction of the Introduction to Modern Atmospheric Effects would not be appropriate and should be left out.

The sample warnings should be included, along with the USITT-type warnings.

The recommendation for manuals should include some bullet points, either from the NIOSH study or from the fog book.

7.3Fog Book III

7.3.1 New introduction (Hektner)

The consensus was that we accept the modified Hektner text to replace the first five and a half lines of the present text on page 3:

> Atmospheric effects have been part of theatrical productions for as long as the medium has existed. The Greeks used burning pitch and resinous torches. In Shakespeare's time sulphurous fumes moved across the stage of the Old Globe in London. It wasn't until the middle of the Twentieth Century that people in the industry began to use other methods besides combustion to produce the effect they wanted. Many still remember heating sal ammoniac (ammonium chloride) to produce a thin acrid smoke, pumping a bee smoker, or lighting smoke cookies or pellets to gain the effect the producers desired. Simply exposing titanium tetrachloride to the air produced a smoke, hazardous though it might have been. The atmospheric effects began to change when the industry began to use solid carbon dioxide (dry ice) in water for fog and adapted insecticide sprayers to use light mineral oil and water to form a dense **smoke.**

[The use of bold face type is explained in a footnote in the book.]

7.3.2 New words on liquid synthetic air (Schoeneman and Jim Foley)

The group discussed Jim Foley's text on liquid synthetic air and Larry Schoeneman's modifications of it. Schoeneman's text was reworked as follows:

On Page 10, under “Cryogenic Fogs, after "…liquid nitrogen fog machines.":

> In response to the need for large-scale cryogenic fog effects, ~~UCISCO developed~~ a liquid synthetic air has been developed. This cryogenic liquid is a homogeneous mixture of liquid nitrogen (LN2) and liquid oxygen (LOX) ~~in a ratio identical to that of the gaseous nitrogen and oxygen~~ that produces a gaseous mixture with a ratio of nitrogen and oxygen identical to the ratio in the atmosphere. Atmospheric effects using synthetic air function identically to LN2 fog effects. ~~UCISCO received~~ An academy award was given in 1998 for advancing the technology ~~the development of liquid synthetic air~~.

Additions to the Safety Guidelines on page 13:

> **Liquid synthetic air:** Liquid synthetic air (LSA) is a homogeneous mixture of liquid nitrogen and liquid oxygen which can be used as a cryogen in fog effects in place of LN2 (liquid nitrogen). Because the concentration of oxygen (O_2) in the gas produced by the mixture is between 19.5% and 22%, LSA can be added to the atmosphere in unlimited quantities.
>
> NOTE: ~~since LN2 and LOX (liquid oxygen) have different boiling points and heats of vaporization~~ Oxygen concentrations in LSA must be monitored frequently ~~on a daily basis~~. Monitoring should address two concerns: (1) the longer the liquid remains in its container, the higher the O_2 concentration will be; and (2) whenever LSA is allowed to pool outside of its cryogenic container the O_2 concentration will rise above 23.5% very quickly. Too much oxygen can create an increased fire hazard. Caution must be exercised to insure safe usage.
>
> Oxygen: Oxygen is a colorless, odorless element, which constitutes about 21% of the atmosphere by volume. Oxygen is a gas above -198°C and is necessary for human respiration. Oxygen is also primarily responsible for combustion or burning. In the US, required oxygen concentration levels are set by OSHA to be above 19.5%. ~~to avoid Oxygen Deficiency Hazard (ODH) and below 23.5% (the concentration at which accelerated burning becomes a concern).~~

In the glossary, correct the nitrogen entry's text as follows:

> **Nitrogen:** a colorless, odorless, non-flammable, gaseous element that constitutes about ~~80%~~ 78% of the volume of the atmosphere. When cooled to –198°C, it becomes a liquid and an effective cryogen.

Bill Hektner moved that the revised text be accepted and published as an addendum to the existing 2nd edition. Jim Gill seconded the motion. The vote was 13 in favor, with one abstention (besides the chair). The motion carried.

7.3.3 Rewrite the whole thing (Ruling)

Ruling proposed that he be allowed to rewrite the fog book. He said that he had prepared a lot of material for the Nebulous Effects dog-and-pony show given on the 10th, and he thinks it could be incorporated into the book to make a more informative third edition. The F&S Working Group would, of course, have to agree to the text and would be allowed to edit it. Ruling hopes that a first draft would be available for the January meeting, but would definitely be available by the March meeting.

Mike Wood moved "we take advantage of Karl before he rescinds his foolish offer." Jim Gill seconded the motion. Thirteen were in favor, and one was against. The motion carried.

Schoeneman asked the group to forward to Ruling any language they would like to see included in the book.

8 Liaison Reports

8.1PLASA (Tim Cox)

No report at this time.

8.2JATET (Schoeneman)

No report at this time.

8.3VPLT (von Hofen)

No VPLT representative attended. No report at this time.

8.4Labor Unions (Fails)

Gary Fails spoke to Joe Petruccio, the head of the IATSE safety committee. Fails had sent him a copy of the fog book, which Petruccio was to take the international convention to discuss with the Safety Committee. Petruccio told Fails that they had looked at the Introduction to Modern Atmospheric Effects. Fails said they like it, and that the IA might buy some. Fails asked that we be invited to the next meeting. Joe Petruccio "took note of that."

Gary Fails also talked to Monona Rossol about the pit ventilation system installed at the Palace for Beauty and the Beast. Monona said that the pit ventilation worked for controlling the fog but not for controlling the pyro smoke. A similar system will be installed in Les Miz at the Imperial Theatre.

9 New business

Schoeneman asked Gary Crawford to make some specific motions from his letter of June 15, 1998.

Crawford moved that we write a letter to Monona Rossol asking her for documentation supporting her report submitted at the Stage Directors & Choreographers Foundation Inc. Fog Luncheon, March 31, 1998. Jim Gill seconded the motion. Unanimous by show of hands.

Schoeneman asked Crawford to write the letter, and to send the draft to Ruling in time to be distributed for the next meeting.

Gary Crawford moved that we conduct a study of the scents and colorants that are additives inside fog fluids at high temperatures. Jim Gill seconded. By show of hands, one in favor, three abstain, ten against. The motion failed.

10 Other business

Mike Wood reported that John Petts of Martin (formerly of JEM) said the Dow Chemical of the UK has instructed their distributors of propylene glycol not to sell it to fog manufacturers.

This precipitated a discussion of approaching the CMA, and reviving that project. The group felt that Schoeneman should contact Larisa Rudenko to get advice on how to approach the CMA. Larry promised to consult with a significant number of F&S members before doing anything beyond this.

11 Schedule for future meetings

Schoeneman announced that the next meeting would be Saturday, January 23, 1999, from 1:00 to 4:00 p.m. at the Dallas/Ft. Worth Marriott. The meeting after that would be at the USITT Conference in Toronto on March 24, 1999 at 1:00 in afternoon.

12 Adjournment

Bill Hektner moved we adjourn. Mike Wood seconded the motion. There were no objections. Schoeneman declared the meeting adjourned at 9:18 p.m.

F&S Membership List

Name	Company	Status	Interest Cat.
Murray Gellatly	A.C. Lighting Ltd.	P	G
Hugh A. Rose	Alliance of Motion Pict. & Television Prod.	O	G
Rob Schneider	Arizona State University	O	U
Brad Dittmer	Associated Theatrical Contractors	P	U
Patrick O'Rourke	Big Apple Lights	O	U
Gary Crawford	C.I.T.C.	O	P
Gary Fails	City Theatrical, Inc.	P	P
F. Lee Iwanski	Four Star Lighting	P	U
Mike Wood	High End Systems	P	P
Lowell Fowler	High End Systems	A	P
Larry Schoenemann	Interesting Products, Inc.	P	P
Jack Suesse	J.R. Clancy, Inc.	O	G
Greg Meeh	Jauchem & Meeh, Inc.	O	P
Norman Wright	Jem Smoke Machine Co./Group One	O	P
Jon Petts	Jem Smoke Machine Co, Ltd.	O	P

Name	Company	Status	Interest Cat.
Adrian Segeren	Le Maitre Special Effects	P	P
Randy Segeren	Le Maitre Special Effects	A	P
Marc Gingras	MDG Fog Generators Ltd.	P	P
Martin Michaud	MDG Fog Generators Ltd.	A	P
Tim Cox	PLASA	A	G
Tony Douglas-Beveridge	PLASA Standards Office	P	G
George Sabbi	PRG Lighting Division	O	U
Jim Gill	Reel EFX	P	P
Martin Becker	Reel EFX	A	P
Eric Tishman	Rosco Laboratories	P	P
Dan Faulkner	Rosco/Entertainment Technology	A	P
Gordon Pearlman	Rosco/Entertainment Technology	A	P
Heinz Siller	RST Prasentationssysteme	O	G
Beverly Huggins	SFX Design, Inc.	O	P
Nathan Kahn	Theatre Effects, Inc.	P	P
Thomas Costello	TJC and Associates	P	G

Name	Company	Status	Interest Cat.
Colin Waters	TMB Associates	O	G
James F. Foley	UCISCO, Inc.	P	P
Bill Hektner	USITT Health & Safety Commission	P	G
Florian Von Hofen	VPLT	P	G
Eckart Steffens	VPLT	A	G
Gunther Schaidt	VPLT / Safex Chemie	A	P
Jeffrey Lind	Walt Disney Imagineering	O	U
Michael Zilz	Zilz International GmbH	O	G

Status:
P = Principal voting member
A = Alternate voting member
I = Individual voting member
O = Observer, non-voting

Interest Category:
P =Producer of fog equipment
U = User of fog equipment
G = General interest