

**Minutes**  
**Fog & Smoke Working Group**  
19 March 2020  
via WebEx

**Chairpersons:**

Larry Schoeneman; Larry Schoeneman; O; G (presiding)  
Brad Dittmer; Stage Labor of the Ozarks; P; U

**Recording secretaries:**

Karl Ruling and Richard Nix, ESTA

**Attendees:**

Matthew Antonucci; Contract Services Administration Trust Fund; P; U  
Brad Dittmer; Stage Labor of the Ozarks; P; U  
Mark Elliott; Walt Disney Company; O; U  
Cedric Jackson; Screen Actors Guild - American Federation of Television & Radio Artists; P; U  
Joseph Kapp; Hillmann Consulting, LLC; P; G  
Franco Magliozzi; Chubb Group of Insurance Companies; O; G  
Don Phillips; Ultratec Special Effects Inc.; P; MP  
Karl G. Ruling; Unit 12 Productions; I; CP  
Larry Schoeneman; Larry Schoeneman; O; G  
Mona Shum; Aura Health and Safety Corporation; I; U  
Mike Skinner; Contract Services Administration Trust Fund; A; U  
Keith Sklar; Actors' Equity Association; P; G  
Mike Wood; Mike Wood Consulting LLC; P; G

No visitors.

**Opening Remarks**

Larry Schoeneman called the meeting to order at 12:03. He thanked everyone for taking time to attend today.

**2 Patent and anti-trust statements**

**2.1 Reading of the anti-trust statement**

Karl Ruling read the following statement aloud to the assembly:

*ESTA and its members take seriously their obligation to comply with all applicable antitrust laws. Therefore, during this meeting and during all ESTA events, all discussions will be limited to those subjects that are permitted by the antitrust laws. All members should refrain from any discussion or mention of competitively sensitive subjects such as the current or future prices charged for any member product or services, current or future marketing plans or strategies, and current or future costs, including employee salaries. There also must be no agreement on the suppliers or customers that members will or will not do business with or the markets in which members will conduct business.*

*Violations of the antitrust laws can have serious consequences. If you have any questions or concerns about anything that is discussed at an ESTA meeting, please bring your concern to ESTA management. An easy to read pamphlet describing the antitrust laws is available from the ESTA staff.*

Karl Ruling held up the pamphlet for all who had video to see, also stating that he was, in fact, holding up the pamphlet for those who had only dialed in.

**2.2 Reading of the call for patents**

Larry Schoeneman read the following statement aloud to the assembly:

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

*In keeping with the open disclosures policy, I ask if anyone present wishes to notify this working group of the existence of a patent, patent application, copyright, or other protected intellectual property that might protect material in a standard being developed by this working group. You need not be the holder of the patent or copyright to notify this working group of its existence.*

Nothing was revealed.

### 3 Attendance and Membership

#### 3.1 Requirements for membership

Larry Schoeneman read the following statement aloud to the assembly:

*Membership is open to all parties who are affected by the work of the group; membership in ESTA is not a requirement, but there is a \$100/person/year participation fee to help fund the costs of running the Technical Standards Program. Voting members are required to attend meetings and vote on letter ballots. Any principal member and alternate that both miss three consecutive meetings or that miss three consecutive letter ballots will have their membership status changed to observer. This action will be taken at the beginning of the first meeting after such inaction and will be recorded in the minutes of that meeting.*

#### 3.2 Introduction of attendees

Karl Ruling read the names of everyone present on the WebEx, either logged in or dialed-in by phone.

#### 3.3 Determination of a quorum

Schoeneman announced that a quorum and enough voters to pass a supermajority vote were present.

#### 3.4 Processing of new membership and status change requests

The following application has been received:

Michael Skinner; Contract Services Administration Trust Fund; Alternate; User

Mike Wood moved to accept Mike Skinner's application. The motion was seconded and carried. There were no objections or abstentions.

#### 3.5 Consensus body

| Name              | Representing                                | Status | Int Cat |
|-------------------|---|--------|---------|
| Keith Sklar       | Actors' Equity Association                  | P      | G       |
| Mona Shum         | Aura Health and Safety Corporation          | I      | U       |
| Matthew Antonucci | Contract Services Administration Trust Fund | P      | U       |
| Chris Moulton     | Contract Services Administration Trust Fund | A      | U       |
| Michael Skinner   | Contract Services Administration Trust Fund | A      | U       |
| Joseph Kapp       | Hillmann Consulting, LLC                    | P      | G       |
| Edwin S. Kramer   | I.A.T.S.E. Local 1                          | P      | DE      |
| Stephen Vanciel   | IATSE Local 631                             | P      | U       |
| Mike Wood         | Mike Wood Consulting LLC                    | P      | G       |
| Paul Jordan       | NBC Universal                               | P      | U       |
| Cedric Jackson    | SAG - AFTRA                                 | P      | U       |
| Brad Dittmer      | Stage Labor of the Ozarks                   | P      | U       |
| Don Phillips      | Ultratec Special Effects Inc.               | P      | MP      |
| Marnie Styles     | Ultratec Special Effects Inc.               | A      | MP      |

| Name                   | Representing                | Status    | Int Cat |
|------------------------|-----------------------------|-----------|---------|
| Karl G. Ruling         | Unit 12 Productions         | I         | CP      |
|                        | <b>Total votes possible</b> | <b>12</b> |         |
| Custom market producer | Votes by interest category  | 1         | CP      |
| Designer               |                             | 1         | DE      |
| Dealer/Rental company  |                             | 0         | DR      |
| General interest       |                             | 3         | G       |
| Mass marker producer   |                             | 1         | MP      |
| User                   |                             | 6         | U       |

#### 4 Approval of the minutes from the last meeting

(see FSmin02-2020\_DRAFT.pdf)

Mike Wood moved to approve the minutes as written. The motion was seconded, and carried with no objections or abstentions.

#### 5 Approval of agenda

Cedric Jackson moved to approve the agenda. The motion was seconded, and carried with no objections or abstentions.

#### 6 Old Business

##### 6.1 ANSI E1.5 – 2009 (R2018), Entertainment Technology - Theatrical Fog Made with Aqueous Solutions of Di- and Trihydric Alcohols (Reaffirmation, revision, or withdrawal by 29 November 2023)

No news or action.

##### 6.2 ANSI E1.14 - 2018, Entertainment Technology—Recommendations for Inclusions in Fog Equipment Manuals (Revise, reaffirm, or withdraw by 27 February, 2023).

No news or action.

##### 6.3 BSR E1.23, Entertainment Technology - Design and Execution of Theatrical Fog Effects

*TSM's report: The motion to approve the revised version carried. See F&S\_WG\_BallotResults\_E1-23\_2020.pdf. The resolutions were sent back to Caitlin Warbelow, who responded expressing her concern that smaller particles are more hazardous than larger particles, hence the EPA's emphasis on them, but she did not suggest that this standard should be revised to set particular exposure limits.*

Karl Ruling said that both the motion had carried on the WG and the TSC letter ballots. The motion has been forwarded to the ExComm for a vote.

##### 6.4 ANSI E1.29 – 2009 (R2018), Product Safety Standard for Theatrical Fog Generators that Create Aerosols of Water, Aqueous Solutions of Glycol or Glycerin, or Aerosols of Highly Refined Alkane Mineral Oil (Reaffirmation, revision, or withdrawal by 06 November 2023)

No news or action.

##### 6.5 ANSI E1.40 – 2016, Recommendations For the Planning of Theatrical Dust Effects (Reaffirmation, revision, or withdrawal by 16 September 2021)

No news or action.

##### 6.6 Introduction to Modern Atmospheric Effects, 6th edition

*From the draft minutes of the last meeting:*

*“Brad Dittmer suggested that the Introduction might be a good place to discuss the difference between solid*

*particulate matter and vapor droplets. Karl Ruling agreed, and also suggested this might be a good topic for a Protocol article. Joe Kapp agreed with both suggestions. Brad Dittmer asked Karl Ruling if he would write something up for review at the next meeting. He said he would try to do it."*

Karl Ruling reported that he had started a draft Protocol article, which he thought would be useful for the introduction, too. His current approach is to include words about how people try to look for a simple solution, even when the solution might not be simple.

Joe Kapp said that particle size is an important topic to address.

## **7 New business**

### **7.1 Fog exposure and minors**

Cedric Jackson has provided four documents about minors working in the entertainment industry, documents limiting their hours of work, and exposure to atmospheric effects and bright light, among other things. He has asked that we discuss them and consider any action that might be appropriate for this group. Please see

- 2020.01.30 GA Minors and atmospheric smoke acceptable standards.pdf
- 2020.01.30 GA Minors Hours of Performance.pdf
- 2020.01.30 GA Minors in Entertainment.pdf
- Movie Fog and Related Substances Jan-24-2020.pdf

Cedric Jackson gave an overview of the situation in Georgia, and said that this issue has become a nationwide concern, because the guidelines (or regulations) are now being adopted by states across the country.

Matt Antonucci said that he thought that ESTA was not quite ready to develop a national standard because there are so many different opinions, right now. He said that his constituents say they like the 50% rule that has been proposed in Georgia. He also suggested that the industry could come up with accepted exposure levels for minors, then simply add those requirements to the actual production requirements. This way, the requirements will be more consistent across the industry rather than risking having fifty different state regulations.

Larry Schoeneman reminded everyone that, at the inception of the current standards, exposure levels for children was discussed, and that addressing them was intentionally tabled due to lack of studies that pertained to children.

Karl Ruling spoke about the pediatrician's letter, stating that it's approach resulted in the suggested maximum exposure levels being a certain fractional portion of those mentioned in earlier studies.

Mike Wood said that the Georgia approach is a time-based exposure limit, not a particulate size or volume density limit.

Cedric Jackson reminded everyone that the doctor's letter is only one of many others who are willing to speak on the topic, and he also said that legislation is already occurring, regardless if we decide to do anything or not.

Larry Schoeneman asked if the body of medical community had studies to back up their opinions, and would they be willing to share this information. Cedric Jackson said that he thought that the answer was yes to both questions.

Matt Antonucci, cautioned about going down any specific path at this time. Cedric Jackson said that he wanted to explore the studies further, and also wanted to try and find common ground with the recommendations.

Larry Schoeneman said that he did not wish to move forward on a standards action until the science is made available. The consensus agreed. Cedric Jackson said that he would ask for the information. There was more discussion, at the end of which, everyone agreed they will be anxious to see the research data. Larry asked Karl to distribute the information when it was received. Karl Ruling said he would do so.

## 7.2 Other new business

## 8 Other business and announcements

### 8.1 Update on the Canadian study on Fog & Smoke

Mona Shum said that they had completed their initial report on long-term exposures, funded by Worksafe BC as part of their art projects funding, and working in conjunction with some of the IATSE locals 891 and 669 in her area. The initial report was survey-based, and surveys are subject to response bias, so Worksafe BC has asked for a more diagnostic-based study that would use spirometry and other empirical lung function testing.

Shum is working with a medical professional with extensive expertise in this area, Dr. Christopher Carlsten, to facilitate this request. They are investigating the cost and feasibility, because this type of research can be cost-prohibitive over long-term studies. However, Dr. Carlsten is now fully occupied with dealing with the COVID-19 pandemic. There is an April 3 meeting scheduled to see if this moves forward, how much it might cost, and if grants application will be made. Funding for workplace safety studies is available in various provinces.

Shum said there is interest in pulmonary function testing with glycerin fogs. The TLV for glycerin has been removed by ACGIH, so there was a suggestion that the fog exposure standard for it should be removed too. However, there is interest in further studies.

Joe Kapp asked about the Colden-Phylmar study "Theatrical Fog Exposure Assessment Methods, Exposure Limits, and Health Effects – Literature Review" done in 2017 for CSATF and posted on the ESTA website. It says that highly refined mineral oil has low acute and low sub-acute toxicity in animals, and limited effects with single and short term inhalation exposure to relatively high concentrations, but the table in the back says that its use is banned by Safety Bulletin #10 and Worksafe BC. Matt Antonucci agreed that highly refined mineral oil is not a particular health hazard and can be used safely in fog effects. Kapp said that there is now conflicting information. Matt Antonucci said that the conflicting wording might be due to a typographical error, and that he will clarify this with the people responsible for Bulletin 10. Older editions of Bulletin 10 did indeed ban mineral oil fogs, but the most recent edition does not.

After more discussion, the consensus was that this topic has wide impact.

### 8.2 Above & Beyond Awards

Larry Schoeneman reminded everyone about the award. Richard Nix said that the nominations are made online, and that the deadline for this year's nominations is 01 November 2020, for awards that would be issued in January of 2021. Information on the Above & Beyond Awards may be found at [http://tsp.esta.org/tsp/news/award\\_recipients.html](http://tsp.esta.org/tsp/news/award_recipients.html).

### 8.3 Other announcements

Brad Dittmer said he was glad we did not have a discussion about the Purell-injected fog machine that was advertised on Facebook as a method to sterilize a venue prior to attendee admittance. There was further discussion, much to Brad's consternation.

## 9 Schedule for future meetings

The full meeting schedule may be found at <http://www.esta.org/ESTA/meetings.php>.

It was announced that the Summer 2020 meetings will be held in conjunction with the North American Theatre Engineering and Architecture Conference in New York City, 19-20 July 2020. The schedule has not yet been confirmed.

The Fall meetings will be held in Westlake, TX, the first weekend of October 2020.

## 10 Adjournment

Brad Dittmer moved the meeting adjourn. The agenda being complete and there being no further business brought forward, Larry Schoeneman declared the meeting adjourned at 13:30.



Fog & Smoke Working Group members as of 25 March 2020

| Delegate          | Representing  | Voting status | Int. cat. |
|-------------------|---|---------------|-----------|
| Matthew Antonucci | Contract Services Administration Trust Fund                             | P             | U         |
| Robert Barbagallo | Solotech Inc.   | O             | U         |
| Paul Beasley      | Walt Disney Company   | O             | U         |
| Justin Bennett    | University of the Incarnate Word  | O             | U         |
| Brad Dittmer      | Stage Labor of the Ozarks   | P             | U         |
| Mark Elliott      | Walt Disney Company   | O             | U         |
| Mike Garl         | Mike Garl Consulting LLC  | exf           |           |
| Jerry Gorrell     | Theatre Safety Programs   | O             | G         |
| Erin Grabe        | ESTA  | exf           | G         |
| Robert Haycock    | UC Berkeley   | O             | U         |
| Cedric Jackson    | Screen Actors Guild - American Federation of Television & Radio Artists | P             | U         |
| Paul Jordan       | NBC Universal   | P             | U         |
| Nathan Kahn       | Look Solutions USA Ltd.   | O             | MP        |
| Joseph Kapp       | Hillmann Consulting, LLC  | P             | G         |
| Edwin S. Kramer   | I.A.T.S.E. Local 1  | P             | DE        |
| Franco Magliozzi  | Chubb Group of Insurance Companies                                      | O             | G         |
| Tyler Mickley     | Look Solutions, LLC.  | O             | CP        |
| Chris Moulton     | Contract Services Administration Trust Fund                             | A             | U         |
| Richard J. Nix    | ESTA  | exf           | G         |
| Don Phillips      | Ultratec Special Effects Inc.   | P             | MP        |
| Karl G. Ruling    | Unit 12 Productions   | I             | CP        |
| Karl G. Ruling    | ESTA  | exf           | G         |
| Larry Schoeneman  | Larry Schoeneman  | O             | G         |

Fog & Smoke Working Group members as of 25 March 2020

| Delegate        | Representing                                | Voting status | Int. cat. |
|-----------------|---|---------------|-----------|
| Ford Sellers    | Chauvet Lighting                            | O             | MP        |
| Mona Shum       | Aura Health and Safety Corporation          | I             | U         |
| Mike Skinner    | Contract Services Administration Trust Fund | A             | U         |
| Keith Sklar     | Actors' Equity Association                  | P             | G         |
| Marnie Styles   | Ultratec Special Effects Inc.               | A             | MP        |
| Stephen Vanciel | IATSE Local 631                             | P             | U         |
| Colin Waters    | TMB   | O             | G         |
| Mike Wood       | Mike Wood Consulting LLC                    | P             | G         |

**Key to codes:**

|   |                     |    |                        |
|---|---------------------|----|------------------------|
| P | Principal voter     | CP | Custom-market producer |
| A | Alternate voter     | DE | Designer               |
| I | Individual voter    | DR | Dealer/Rental company  |
| O | Observer, non-voter | G  | General interest       |
|   |                     | MP | Mass-market producer   |
|   |                     | U  | User                   |