Meeting Minutes
September 29 and 30, 2015

Technical Committee on Hybrid (Water and Inert Gas)
Fire Extinguishing Systems (HYB-AAA)
NFPA 770 Draft Development

The following are the meeting minutes from the first meeting of the Technical Committee on Hybrid (Water and Inert Gas) Fire Extinguishing Systems held in St. Louis, MO on September 29 and 30, 2015.

Attendance:

<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
<th>Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chair</td>
<td>Jeff Harrington</td>
<td>Harrington Group</td>
</tr>
<tr>
<td>Secretary</td>
<td>Thomas Euson</td>
<td>3S, Inc.</td>
</tr>
<tr>
<td>Staff Liaison</td>
<td>Barry Chase</td>
<td>National Fire Protection Association</td>
</tr>
<tr>
<td>Principals</td>
<td>Robert Ballard</td>
<td>Victaulic</td>
</tr>
<tr>
<td></td>
<td>Frank Broidy</td>
<td>Fire &amp; Pump Service Group</td>
</tr>
<tr>
<td></td>
<td>Brent Ehmke</td>
<td>Ehmke Associates</td>
</tr>
<tr>
<td></td>
<td>Eric Forssell</td>
<td>Jensen Hughes</td>
</tr>
<tr>
<td></td>
<td>Robert Kasiski</td>
<td>FM Global</td>
</tr>
<tr>
<td></td>
<td>Shawn Mullen</td>
<td>Protex Central, Inc.</td>
</tr>
<tr>
<td></td>
<td>Blake Shugarman</td>
<td>Rep. Fire Suppression Systems Association</td>
</tr>
<tr>
<td>Alternates</td>
<td>Kevin Murray*</td>
<td>Siemens Industry, Inc.</td>
</tr>
<tr>
<td>(* voting)</td>
<td>(Alt. to J. Sharp)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Brandon Troc</td>
<td>Fire &amp; Pump Service Group</td>
</tr>
<tr>
<td></td>
<td>(Alt. to F. Broidy)</td>
<td></td>
</tr>
<tr>
<td>Guests</td>
<td>Hong-Zeng (Bert) Yu</td>
<td>FM Global</td>
</tr>
<tr>
<td></td>
<td>Aaron Hinkle</td>
<td>3S, Inc.</td>
</tr>
<tr>
<td></td>
<td>Frank Freidl</td>
<td>Victaulic</td>
</tr>
<tr>
<td></td>
<td>Jason Chou</td>
<td>Marioff</td>
</tr>
<tr>
<td></td>
<td>Adam Tracy</td>
<td>Marioff</td>
</tr>
<tr>
<td></td>
<td>Steven Owens</td>
<td>Victaulic</td>
</tr>
</tbody>
</table>

A. Call to order by Jeff Harrington, Chair.

B. Introductions around the room by principals, alternates and guests.

C. Tom Euson agreed to be Secretary and keep the meeting minutes.

D. Jeff Harrington outlined his general approach to the meetings.
   a. Casual approach.
   b. All parties will have an opportunity to be heard.
   c. Open discussions.

E. Staff liaison comments by Barry Chase
a. Fire exits.
c. NFPA’s anti-trust statement.
d. Discussed manual-of-style
e. Robert’s Rules of Order to be followed.
f. Schedule for drafting the standard.
g. Substantiation statements for committee actions.
h. Voting
   i. Needs ⅔ affirmative vote to pass.
   ii. Call the question procedure
   iii. Balloting

F. FM Presentation on their Approval Standard 5580 for Hybrid Water Mist Systems.

G. Victaulic presentation on their Vortex hybrid water mist system.

H. Marioff presentation on their hybrid water mist system for subfloors.

I. Discussion on committee name and scope and document scope. Requested revisions will be forwarded to the Standards Council. See attached.

J. Discussion on what the document should include.
   a. Included items
   b. Major categories
   c. List of concerns

K. It was decided to use Victaulic’s suggested draft as the backbone for our initial draft.

L. When it was apparent to the Chair that we were not going to be able to complete a first draft of a document, the committee proceeded on the following basis:
   a. Rough draft in place – fill in the blanks later.
   b. No further “wordsmithing” at this meeting.
   c. Establish task group assignments.
   d. Teleconference meeting later – prior to next meeting.

M. Major discussion on:
   a. Discharge times
   b. Concentration
   c. Agent quantity
   d. Extinguishing times
   e. Excess O₂ reduction
   f. Performance based approach
   g. Variable water droplet size

N. The following task groups to report to the chair by end of the 1st week in January.
   a. Task group to work on section dealing with “compatibility or incompatibility of certain fuels and use of hybrid systems” to extinguish fires involving these fuels.
      i. Eric Forssell
      ii. Tom Euson
   b. Task group on “Partial Pressures at Elevation – Effect on O₂ Levels”.
      i. Adam Tracy
      ii. Tom Euson
c. Task group on “Pipe, valves and Fittings” for hybrid systems.
   i. Brent Ehmke
   ii. Bob Ballard
   iii. Frank Broidy

d. Task group on “System Design” based on the Victaulic Vortex system design methodology
   – Chapter 7, Total Flood and Chapter 8, Local Application.
   i. Bob Ballard

e. Task group on “Containers for Agent Components”
   i. Frank Broidy
   ii. Bob Ballard

f. Task Group on “Chapter 6”.
   i. Jeff Harrington
   ii. Bob Kasiski

g. Task Group on “Abort Switch Function”
   i. Shawn Mullins
   ii. Jeff Harrington

O. Next meeting February 2 and 3, 2016. Location to be determined.

P. Meeting adjourned.

Very truly yours,

[Signature]

Thomas G. Euson
Revisions Requested by HYB-AAA:

Hybrid (Water and Inert Gas) Fire Extinguishing Systems (HYB-AAA)

Committee Scope

This committee shall have primary responsibility for documents covering the design, installation, operation, inspection, testing, and maintenance of hybrid (water and inert gas) systems. Hybrid (water and inert gas) fire extinguishing systems that use a combination of atomized water and inert gas to extinguish fire. This scope does not include systems that use only inert gas or only atomized water (water mist) to achieve extinguishment. It also does not include twin fluid water mist systems that use inert gas to propel and/or atomize water mist droplets without generating a significant inert gas concentration in the protected space.

Committee Responsibility

Standard on Hybrid (Water and Inert Gas) Fire Extinguishing Systems (NFPA 770)

Substantiation for Changes:

The committee requests to remove the words “fire extinguishing” from the committee scope and committee title. There is concern that other uses, such as fire control or suppression, might be introduced in the future, and the committee would like to own the responsibility for all uses of hybrid media. At present, the committee intends to limit the document scope of NFPA 770 to fire extinguishing systems only.

In addition, the committee would like to simplify the committee scope by removing the definition of hybrid systems, as well as the list of topics that are excluded from the committee scope. As part of the discussion, the committee carefully crafted new definitions for Hybrid Fire Extinguishing System and Hybrid Media, which will be the point of reference for the committee scope:

3.3.7 **Hybrid Fire Extinguishing System.**
A fire extinguishing system capable of delivering hybrid media at the specified design rate and proportion.

3.3.8* **Hybrid Media.**
Water mist and inert gas agent combined in a controlled proportion, where both components are contributing factors in fire extinguishment.

A.3.3.8 **Hybrid Media.** Hybrid media is differentiated from a twin fluid water mist system, which uses water for cooling, vaporization, and inerting. The gas in a twin fluid system does not play a role in the extinguishment process and only serves as a medium for the water to atomize. For twin fluid water mist systems, see NFPA 750.