FAST FACTS FROM THE STANDARDS WORLD

INTRODUCTION: This FISC Bulletin Board compiles clips of recent events concerning consensus-based fire investigation standards and guidelines. These Fast Facts cover news about NFPA 921 Guide for Fire and Explosion Investigations, NFPA 1033 Standard for Professional Qualifications for Fire Investigator, the National Commission on Forensic Science (NCFS), and the Organization of Scientific Area Committees (OSAC). We also bring you developments in fire investigation policy from an organization representing all fire services throughout the states of Australia and New Zealand, the Australasian Fire Authorities Council (AFAC).

So that you may pursue more information about topics in our Fast Facts, we have provided hyperlinks to sources with more detail. To click the embedded links, IAAI members can access this column online at the IAAI website. Follow this breadcrumb trail: www.firearson.com > Publications and Resources > Fire & Arson Investigator Journal (member sign in required). Click the "July 2017 Journal" and a PDF file will open. Navigate to the FISC Bulletin Board, find the links (indicated by underlined text), and click away!

Public Comment Period Open for NFPA 921, 2020 Edition

The NFPA is now accepting Public Input for **NFPA 921, 2020 Edition**. Anyone interested may now submit input for the first draft of the 2020 edition. The starting point for proposed revisions is the current (2017) edition.

The NFPA accepts submissions electronically through the NFPA 921 Document Information Page at www.nfpa.org/921.[1] Click the link, "Submit a Public Input for the Next Edition." A TerraView™ document will open, with instructions and links to NFPA 921, 2017 edition. Here you may provide your input to do any of the following tasks:

a) Add New Section(s),

b) Revise Existing Section(s), or;

c) Create a Global revision to add, modify, or delete a word or phrase throughout the entire document.

The TerraView™ also provides you free access to read the entire NFPA 921 2017 edition.

Mark your calendar: the Public Input closing date (i.e. deadline for Public Input) is **January 4, 2018**.

After the Public Input period has closed, the NFPA 921 Technical Committee (TC) conducts a First Draft Meeting and responds to all public inputs. The TC will prepare a First Draft of NFPA 921, 2020 Edition, which the NFPA will post for Public Comment on September 6, 2018. If you want to learn more about NFPA's open, consensus-based standards development standards process, which governs the revisions to NFPA 921, visit NFPA's "How The Process Works" webpage.

NFPA 921 Task Groups At Work on 2020 Edition

Members of the public are not the only ones who submit Public Inputs that the NFPA 921 TC will consider in preparing the First Draft of the 2020 edition. The Chair of the NFPA 921 TC, Randy Watson (who is also an IAAI Director), has created six Task Groups to work on new or revised material for the next edition. Each Task Group consists of members of the TC as well as others who have a special expertise or interest in the matter assigned. Below is a list of the task groups and a brief synopsis of their goals:

- **Canine Task Group:** Goal is to consolidate the existing canine sections and provide a basic introduction concerning what fire investigators need to know when dealing with canine-handler teams.
- **Fire Patterns Chapter Task Group:** Goal is to reorganize this chapter to follow the scientific method and to explain fire effects more fully.
- **Heating Systems Task Group:** Goal is to provide some guidance for investigators by including basic information about heating systems commonly encountered in residential and light commercial fire incidents.
- **Marine Fire Investigations Chapter Task Group:** Goal is to update this chapter and reorganize the flow to follow the scientific method.
- **Sources of Information Chapter Task Group:** Goal is to update this chapter, and then revise it to address the collection and analysis of "non-scene data," which is relevant information that investigators can collect from sources other than their investigation of the fire scene in a given incident.
- **Wildfire Investigations Chapter Task Group:** Goal is to update the material in this chapter and reorganize it to follow the scientific method, as has been done with both the origin and cause chapters.

The NFPA 921 TC and the Task Groups met for three days in early May 2017 at the NFPA Headquarters in Quincy Massachusetts. The TC reviewed outlines of each Task Group's work, and then provided direction and guidance. You will note that in addition to updating existing material in NFPA 921, several of the task groups are reorganizing chapters to demonstrate how to apply the scientific method to the subject matter of the chapter. This is at the TC's direction, thereby endeavoring to make it easier for users of the document to apply the scientific method in various contexts.

Once each Task Group completes its work and reaches a consensus, it will submit its work product as a Public Input for consideration of the TC at its First Draft meeting in the spring of 2018. The work submitted by the Task Groups as Public Inputs, as well as the action the TC takes on each one in compiling the First Draft of the 2020 edition, will be available for public review and comment before the TC begins work on the Second Draft.[2]

NFPA 921 Possible Amendment re: Incendiary Fire Definition

Joe Sesniak is a NFPA 921 TC principal member representing the IAAI, as well as a FISC Member. He has submitted a proposal[3] for a Tentative Interim Amendment (TIA) for NFPA 921, 2017 Edition, to correct an oversight dealing with the change in definition of "incendiary fire." Mr. Sesniak explains the problem, as follows:[4]

> The definition of "Incendiary Fire" was changed in the 2017 edition of NFPA 921 to address concerns where location is not the only factor in determining an incendiary fire. Although the definition was changed in the definitions chapter, other instances where the concept is applied were missed. In order to fix this error and resulting conflict in definitions, a TIA is necessary and aligns with the original intent of the Technical Committee. The addition of non-mandatory cross-references not only helps prevent future application errors from occurring, but also should prevent needless arguments in litigated matters.

At the time of writing this column, the TC is being balloted on this proposal. The TIA proposal is also available for public comment (closing on July 13, 2017). To see the TIA proposal or make a comment, click on the "Current & Prior Editions" tab of the NFPA 921 Document Information Page (www.nfpa.org/921). Mr. Sesniak' s proposal details the sections of NFPA 921 that are affected by this oversight, and includes specific text to address this issue.

NFPA rules do not permit interim amendments for NFPA codes, standards, and guides unless they are determined to be of an emergency nature. Regardless of whether this TIA is approved, it will become a Public Input in the 2020 edition, opening it for further review and comment by the TC and the public in accordance with the NFPA standards making rules.

In the meantime, anyone involved with incendiary fires should familiarize himself or herself with the new definition of "incendiary fire" in Chapter 3, and consider how to address the issues that might be raised by the inconsistency between this definition and the definitions of this phrase in Chapters 20, 24, and 28.

NFPA 1033 Public Input Period Open for the 2021 Edition

NFPA 1033 is on a five-year revision cycle. NFPA 1033 is now open for Public Input for the **2021 Edition**. The starting point for proposed revisions is the current (2014) edition. If you are considering submitting a recommendation to revise NFPA 921, consider whether a related revision would be appropriate in NFPA 1033, or vice versa.

The NFPA accepts submissions electronically through the NFPA 1033 Document Information Page at www.nfpa.org/1033. Once you are on the NFPA 1033 Document Information Page, click the link, "Submit a Public Input for the Next Edition."[5]

The NFPA applies the same consensus-based standards development process to the revision of NFPA 1033 as it does to NFPA 921, although the deadlines are different as NFPA 1033 is in a later revision cycle. Therefore, review the above summary regarding the NFPA 921 Public Input process. Remember to **mark your calendar** for the **NFPA 1033 Public Input Closing Date: January 3, 2019.**

NCFS Charter Ends and DOJ Seeks Public Input

FISC Bulletin Board articles in April 2015,[6] April 2016,[7] and January 2017[8] described the NCFS and the implications for the fire investigation community of some of its recommendations. In short, the NCFS was a collaborative effort of the US DOJ and NIST. It was designed to make policy recommendations to the DOJ and through NIST, to the OSAC on ways to improve the forensic sciences. OSAC, by contrast is focused on practice-based (rather than policy) initiatives. NCFS' many work products are available on its archived website: https://www.justice.gov/archives/ncfs. Also posted there are the actions the DOJ has taken on these recommendations.

As a national commission, the NCFS was created for a limited term. Its charter ended in April 2017. At the final meeting of the NCFS in April, it was announced that, "Attorney General Jeff Sessions intends to create a Forensic Science Task Force to review the efforts of the Commission and plans to appoint a Senior Forensic Advisor to address many of the key issues identified by the Commission."[9]

To initiate these plans, the DOJ invited public comment, "on how the Department should move forward to evaluate and improve the underlying science of forensic evidence; improve the operational management systems of forensic science service providers; and improve the understanding of forensic science by legal practitioners."[10] The Notice inviting public comment specifically requests input on the following two issues that may be of particular interest to the fire investigation community:[11]

- What is required to improve forensic science practices at the federal, state, local, and tribal levels?
- How should the Department, or any Department entity, coordinate with the Organization of Scientific Area Committees?

Remember that OSAC has categorized fire and explosion investigations as among the forensic science disciplines. Therefore, the activities of the DOJ in response to the NCFS' work and the public comments on the advancement of forensic sciences are likely to have an impact on the fire investigation community. The public comment period closed on June 9, 2017. Public comments are available on the Regulations.gov website. To view them, enter either of the following phrases in the search box, and then click the link to "open the docket:" Search "Docket No. OLP 160" or Search "advancing forensic science."

OSAC Funded for FY 2018

With the change in the US government administration in January 2017, there was some question about the future funding of OSAC. That issue has been settled, at least for now. The May 2017 OSAC newsletter announced that on May 5, 2017 the President signed H.R. 244 into law, which allows the DOJ to transfer $3M to NIST to fund OSAC operations until September 30, 2018. This means OSAC will continue to host its major meetings every 9 months and move forward with its agenda.[12]

The OSAC Newsletters are a quick way to become informed of OSAC activities. All newsletters are available here: https://www.nist.gov/topics/forensic-science/organization-scientific-area-committees-osac/osac-newsletter (At the time of writing this column, the May 2017 Newsletter was the most recent edition.)

OSAC & ASTM Standard Test Method for Fire Debris Samples

The other item of interest in the May 2017 OSAC Newsletter was an article on the position that the OSAC Fire and Explosives Analysis Subcommittee has taken on ASTM-E1618-14. This is the Standard Test Method for Ignitable Liquid Residues in Extracts from Fire Debris Samples by Gas Chromatography-Mass Spectrometry, 2014. This is one of the ASTM publications referenced in NFPA 921. The Subcommittee evaluated ASTM-E1618 to determine its suitability for the OSAC registry. The newsletter summarizes the Subcommittee's position by saying:[13]

> Although this document has served its purpose well, the expectations of the criminal justice community, and specifically of the OSAC process, require a significantly higher level of detail in standardized methods. E1618 represents the past 30 years of forensic practice but does not address the concerns that will dominate the future of forensic science.

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The article goes on to identify four areas where ASTM E1618 needs improvement including changes in report writing to require "enhance[ed] verbiage to be clear and unbiased," and "[d]efining and normalizing report terminology."[14] More details are available in the OSAC May 2017 newsletter, available on the OSAC website.

Fire Investigation Policy "Down Under" Tracks NFPA 1033

FISC member Ross Brogan who is an Adjunct Lecturer and Academic Associate at Charles Sturt University in New South Wales, Australia provides us the following Fast Facts.[15] The Australasian Fire Authorities Council (AFAC) is an organization representing all fire services throughout the states of Australia and New Zealand. Within AFAC, there is a group called the Fire Investigation and Analysis Group (AFIAG) and this is made up of representatives from all fire services' fire investigation units throughout Australia and New Zealand (and sometimes South Pacific nations).

AFIAG has indicated that they are recommending a policy that would be applicable throughout Australia and New Zealand. The recommendation, if implemented, would require that all persons undertaking the role of fire investigations meet minimum competency requirements. This would mean that investigators would be responsible for completing and maintaining training suitable to the nature and level of investigations they are required to undertake. It is also recommended that investigators retain records of their training activities relevant to their area of specialty and level of their investigations

As Ross Brogan points out, this is an important development as it is an international initiative consistent with NFPA 1033.

Does NFPA 1033 & The Scientific Method Apply to Wildland & Other Outside Fires?

Recently in a discussion among a group of fire investigators, this question was raised: "Does NFPA 1033 apply to wildland and other outside fires?" A related question is whether the scientific method applies to the investigation of wildfires. It seems that most fire investigators use NFPA 1033 in the context of structure fires, so the answers to these questions about wildfire investigations are not immediately apparent.

Our analysis begins by considering the relationship between NFPA 1033 and NFPA 921. It is generally understood that these two documents are related. NFPA 1033 is the mandatory standard for a fire investigator's professional qualifications. As such, it defines the fundamental knowledge and the essential skills one must have to perform the specific tasks required in the job of a fire investigator.

However, the fire investigator must look elsewhere for the body of knowledge that NFPA 1033 requires of an investigator, as well as for the methodologies needed to perform the required skills. The NFPA 921 guide fills these gaps — by providing "a systematic, working framework or outline by which effective fire and explosion investigation and origin and cause analysis can be accomplished."[16]

It appears clear that NFPA 921 applies to wildfire investigations as it has an entire chapter on that topic.[17] The basic methodology recommended by NFPA 921 is the scientific method.[18]

However, what about NFPA 1033? First, consider the "Scope" and "Purpose" statements in NFPA 1033, which describe its application. Section 1.1 "Scope" says, "This standard shall be to specify the minimum job performance requirements (JPRs) for fire investigators." Section 1.2 states its "purpose," "shall be to specify the minimum job performance requirements for serving as a fire investigator in both the private and public sectors."

These statements are broad enough to encompass fire investigators regardless of the subject of their investigations, but do not specifically answer the questions posed above. Helpfully, the intent of NFPA 1033 is clarified by the Annex A reference to the scope statement. Section A.1.1 states, "The intent of this standard applies to all fire investigation, including outside, wildland, vehicle, and structural fires." [Emphasis added.] Even though the material in Annex A is for informational purposes only,[19] it certainly explains that NFPA 1033 is intended to apply to "outside" and "wildland" as well as "structural" and other fires.

Reading further in NFPA 1033, section 4.1.2 requires that fire investigators "shall employ all elements of the scientific method as the operating analytical process throughout the investigation and for drawing conclusions." By connecting the dots, it is reasonable to infer that NFPA 1033, together with NFPA 921 and the scientific method are applicable to wildfire investigations.

This is good news for wildfire investigators especially in light of developments summarized in prior editions of the FISC Bulletin Board, including:

a) **The NAS/NRC Report Focus on Standards and Best Practices:**[20] A big push to advance the forensic sciences, including fire investigations, began with the 2009 report Strengthening Forensic Science in the United States: A Path Forward (the "NAS/NRC Report").[21] One of the Report's recommendations was to develop and implement standards and best practices as guides for the education, training, and certification of forensic science professionals.

b) **The Addition of NFPA 1033 and NFPA 921 to OSAC'S Registry of Approved Standards and Guidelines:**[22] To help implement the NAS/NRC Report U.S. Department of Justice (DOJ) and the National Institute of Standards and Technology (NIST) created OSAC. A central purpose of OSAC is to "facilitate the development and promulgation of consensus-based documentary standards and guidelines" in each of the forensic science disciplines,[23] including fire investigations.[24] OSAC is building a registry of standards and guidelines it approves. As explained by NIST, "a standard or guideline that is posted on the Registry demonstrates that the methods it contains have been assessed to be valid by forensic practitioners, academic researchers, measurement scientists, and statisticians through a consensus development process that allows participation and comment from all relevant stakeholders."[25]

NFPA 1033 and NFPA 921 passed OSACs approval process and OSAC added them to the OSAC registry in 2016. The OSAC approval process delivers another level of scrutiny over and above the NFPA standards development process, which provides additional assurance respecting the scientific underpinnings for both of these documents. OSAC's addition of these documents to its Registry should therefore elevate them in the eyes of the fire investigation community and the courts.

Thus, the types of fire investigations to which NFPA 1033 and NFPA 921 apply, benefit from NFPA's consensus-based process that creates these documents. OSAC's approval of them for the OSAC registry of standards and guidelines provides them further credence. Therefore, to the extent that an investigator's wildfire investigation is rooted in these two documents and is based on

the application of the scientific method, are important factors supporting the position that the investigation is on a solid scientific footing.

In closing, remember that NFPA 1033 does not purport to contain the body of knowledge or the detailed skill sets required of the various types of fire investigations it intends to cover. The body of knowledge respecting fire investigations continues to evolve, as reflected by the three-year revision cycle of NFPA 921. Even NFPA 921, while addressing specialized types of investigations (such as wildfire investigations), includes a preliminary caution. Section 1.3.5 states that the scientific and engineering concepts in NFPA 921 are "presented at an elementary level," and that, "additional technical resources, training, and education may often be needed to be utilized in an investigation." This may certainly be true of wildfire and other types of investigations.

Acknowledgements

Thank you to the following people for contributing to these "Fast Facts:" Ross Brogan for his update on developments in Australia and New Zealand; Joe Sesniak for submitting the TIA proposal for NFPA 921, 2017 edition, and for summarizing his proposal in this article; Randy Watson, the Chair of the NFPA 921 TC, for his review and feedback. We also appreciate the efforts of the following FISC members for reviewing the pre-publication draft of this article: Rick Jones, Ron McCardle, Rick Merck, Angelo Pisani, Jr., Christopher D. Porreca, Mark A. Teufert, Joe Toscano, Jeff Williams, Ross Brogan, and Joe Sesniak.

Finally, we are grateful for the ongoing efforts of IAAI's FISC members for their ongoing contributions to this column and to our committee. FISC members are: Steven J. AVATO, Mark A. BEAVERS, Ross BROGAN, Mike DONAHUE, Geoff HAZARD, Mike HIGGINS, Rick JONES, Raymond J. KUK, Glenn LAUPER, Peter MANSI, Major J. Ron McCARDLE, Wayne J. McKENNA, Rick MERCK, Paul MESSNER, Angelo PISANI, Jr., Christopher D. PORRECA, Gerard H. (Jerry) RUDDEN, Joe SESNIAK, Amanda SILVA, Mark A. TEUFERT, Joe TOSCANO, George A. WENDT, and Jeff WILLIAMS.

1 If the link embedded in this article does not work, here are instructions on how to access the **NFPA 921 Document Information Page**:

- Go to NFPA's Home page at www.NFPA.org.
- Click the "Sign in" link on the upper right. Sign in to your existing NFPA account, or click the link shown to create a free NFPA profile if you do not already have one.
- Once you have signed in, click the "Codes & Standards" tab (upper left part of the page).
- Click the "List of NFPA codes & standards" link. Next, enter "921" in the search by "By document number/title" field (on the right), and click "search."
- Click the "NFPA 921" link. This brings you to the "NFPA 921 Document Information Page."
- Click the "Next Edition" tab. Scroll down and click the "Submit Public Input Online" link.

The Document Information Page has tabs that give you access to the current and prior editions of NFPA 921, information about the next (2020) edition (including the link to submitting Public Inputs), and a wealth of other information about NFPA 921 and related products.

2 See details of NFPA's standards development standards process at NFPA's "How The Process Works" webpage. The deadlines for Public Inputs and Public Comments, as well as other stages in this process are posted under the "Next Edition" tab on the NFPA 921 Document Information Page available at www.nfpa.org/921. If this link does not work, see endnote (1) above for instructions.

3 Joseph Sesniak, Forensic Fire Consultants, Ltd., TIA Log. No. 1269, Re: 3.3.116, 20.1.3, 24.1*, & 28.8.2., public comment closing date July 13, 2017.

4 Email from Joe Sesniak to Terry-Dawn Hewitt, May 26, 2017 (copy on file with the authors).

5 The process for accessing the NFPA 1033 Document Information Page is the same as described in endnote (1) above. Simply search for the document number "1033" (instead of "921") to access the Document Information Page for NFPA 1033. The process of navigating through the tabs is the same as above.

6 FISC Bulletin Board, "Trending: Universal Accreditation for Public and Private Fire Investigation Service Providers," Fire & Arson Investigator Journal, Vol. 65 No. 4, April 2015 at 33.

7 FISC Bulletin Board, "Implementing the NRC/NAS Report: Introducing the National Commission on Forensic Science and the Organization of Scientific Area Committees," Fire & Arson Investigator Journal, Vol. 66 No. 4, April 2016 at 40.

8 FISC Bulletin Board, "Experts Beware: Are Your Foundations Open to Attach?" Fire & Arson Investigator Journal, Vol. 67 No. 3, Jan. 2017 at 30.

9 C. Ken Williams, MS, JD, Criminalistics Section Board of Directors Representative of the American Academy of Forensic Sciences, report on his attendance of the final meeting of the National Commission on Forensic Science as the AAFS representative, published in the email "AAFS News Alerts for May 8, 2017" (copy on file with the authors).

10 Dept. of Justice, "Notice of Public Comment Period on Advancing Forensic Science," April 10, 2017, available at https://www.regulations.gov/document?D=DOJ-LA-2017-0006-0001 (public comments are due Jun. 9, 2017).

11 \d.

12 OSAC Newsletter, May 2017, available at https://www.nist.gov/topics/forensic-science/osac-newsletter/osac-newsletter-may-2017#PublicComment.

13 \d.

14 \d.

15 Email from Ross Brogan to Terry-Dawn Hewitt, May 26, 2017 (copy on file with the authors).

16 Nat'l Fire Prot. Ass'n Technical Comm. on Fire Investigations, NFPA 921 Guide for Fire and Explosion Investigations (2017 ed.) (hereafter "NFPA 921"), s. 1.3.

17 Note that NFPA 921 acknowledges in s. 1.3.5 that it is "not intended as a comprehensive scientific or engineering text. Although many scientific and engineering concepts are presented within the text, the user is cautioned that these concepts are presented at an elementary level and additional technical resources, training, and education may often be needed to be utilized in an investigation."

18 See NFPA 921, Ch. 4 "Basic Methodology," s. 4.2 ". . . [T]he systematic approach recommended is based on the scientific method."

19 The preface to Annex A states, "Annex A is not a part of the requirements of the NFPA document but is included for informational purposes only. This annex contains explanatory material, numbered to correspond with the applicable text paragraphs."

20 See FISC Bulletin Board, "Implementing the NRC/NAS Report: Introducing the National Commission on Forensic Science and the Organization of Scientific Area Committees," Fire & Arson Investigator Journal, Vol. 66, No. 4, April 2016, at 40.

21 Comm. on Identifying the Needs of the Forensic Sci. Cmty., et al., Nat'l Research Council of the Nat'l Acads., Strengthening Forensic Science in the United States: A Path Forward, available at https://www.nap.edu/download/12589.

22 See FISC Bulletin Board, "Noteworthy Developments Respecting NFPA 921," Fire & Arson Investigator Journal, Vol. 67, No. 4, April 2017, at 32.

23 Nat'l Institute of Standards and Technology, Forensic Science, About OSAC https://www.nist.gov/topics/forensic-science/about-osac (last visited Feb. 20, 2017) (emphasis added).

24 To see why the authors state that fire investigations is included as a forensic science discipline, see FISC article -

25 Nat'l Institute of Standards and Technology, Forensic Science, OSAC Registry https://www.nist.gov/topics/forensic-science/osac-registries (last visited Feb. 20, 2017).