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From: Richard Malek [rsmalek@nycap.rr.com]
Sent: Monday, March 09, 2009 1:53 AM
To: NIOSH Docket Office (CDC)
Subject: 141 - Draft NIOSH Alert: Preventing Deaths and Injuries of Fire Fighters When Fighting Fires in Unoccupied Structures
Attachments: NIOSH-141 Comments MALEK.doc; NIOSH-141 Comments MALEK.pdf

March 9, 2009

NIOSH Docket Office
Robert A. Taft Laboratory
4676 Columbia Parkway
Cincinnati, Ohio 45226

RE: NIOSH Docket Number NIOSH-141

To Whom It May Concern:

Please accept the following comments regarding the NIOSH draft document entitled NIOSH ALERT: Preventing Deaths and Injuries of Fire Fighters When Fighting Fires in Unoccupied Structures.

Although the draft ALERT provides no definition for "high-risk fire situations," NIOSH likely correctly concludes that "NIOSH investigations suggest that fire departments, incident commanders, incident safety officers, and fire fighters may not be fully considering information related to building occupancy before performing offensive operations or entering structures to initiate interior operations."¹ However, NIOSH does not appear to consider the benefit of an interior attack with regard to protecting property or mission continuity. NFPA reports that for 2007, \$10,638,000,000 of property damage occurred in structure fires, excluding structures associated with the California Fire Storm². If the fire service were to implement the draft ALERT's recommendation that no offensive interior attacks should be made in unoccupied structures, property damage would likely increase significantly. Considering that U.S. fire departments respond to approximately 525,000 structure fires annually with approximately 15 fire ground fire fighter fatalities annually inside the structure and on the roof, it can reasonably be assumed that interior attacks are being made frequently without serious fire fighter injury or death and therefore a significant percentage of structure fires are not "high-risk." However, the draft ALERT recommends prohibiting interior fire attacks in all unoccupied structures. Although such an approach would likely be effective in reducing fire ground fire fighter fatalities, this would eliminate the benefit of an interior attack with respect to property protection and mission continuity in fire scenarios which are lower hazard and do not represent a "high-risk" of serious fire fighter injury or death.

Fire fighters and the U.S. fire service in general could likely disagree with the NIOSH definition of "high-risk fire situations," since the draft ALERT essentially considers all unoccupied structure fires as high-risk. The draft ALERT references data from NFPA that 151 fire fighters died on the fire ground between 1997 and 2006 (142 killed inside the structure and 9 killed on the roof). NFPA also reports approximately 525,000 structure fires annually in the U.S. during that same period. 151 fire fighter deaths over a period of 10 years and approximately 5,250,000 structure fires is a risk of 2.8×10^{-5} . A risk of 10^{-5} is typically considered remote. The risk of dying in a motor vehicle accident is higher, 10^{-4} , and most people accept the risk of dying in a motor vehicle accident in exchange for the benefit that automobile transportation provides. Considering that, a risk of 10^{-5} is unlikely to deter most fire fighters from interior fire fighting, especially since most fire fighters voluntarily accept the risks associated with fire fighting. Although the likelihood of a fire ground fire fighter death is remote, the overall risk would

¹ Draft NIOSH ALERT: Preventing Deaths and Injuries of Fire Fighters When Fighting Fires in Unoccupied Structures, pg 6

² Karter M [2008]. Fire Loss in the United States 2007. Quincy, MA: National Fire Protection Association

typically be considered unacceptable based on the consequence. Therefore, reducing the fire ground fire fighter fatality risk is an appropriate goal.

The focus of the ALERT should be on how to identify high-hazard fire scenarios, especially those that are high-risk with respect to fire fighter fatalities. Additional areas of focus could include further understanding of building fire and structural hazards, fire department manual suppression capabilities and limitations, and integrating fire department manual suppression operations with the fire and life safety provisions in the building and fire codes.

NFPA 1500, which was first published in 1987 and includes the rules of engagement outlined in Annex A, Section 8.3.2 and is included in the draft ALERT, could be argued has been ineffective in reducing traumatic fire fighter fatalities inside the structure. The rate of traumatic deaths inside structures now stands at 1.9 deaths per 100,000 structure fires according to NFPA³, a rate only slightly lower than that observed in the early 1980s. It is unlikely that the strategy outlined in the draft ALERT (e.g. in essence prohibiting interior attacks in unoccupied structures) will be accepted and implemented by the U.S. fire service. It may in fact, exacerbate somewhat of a cultural war within the fire service with respect to acceptable risks associated with interior fire fighting and may also undermine NIOSH's credibility.

Other comments include:

1. "The top priority at all fire scenes should be saving and preserving lives—both civilian lives and the lives of all fire fighters at the scene"⁴ – A very important and appropriate statement in the draft ALERT
2. "No offensive interior attacks should be made in unoccupied or unsafe structures,"⁵

There is no definition associated with an "unsafe" structure. If the definition is a structure susceptible to imminent collapse or flashover, it would likely be accepted by the fire service to prohibit or terminate offensive interior attacks in such structures, especially when they are unoccupied or highly likely to be so. It can be difficult to predict in advance when such conditions are developing to provide sufficient time to allow fire fighters to exit the structure if offensive operations are in progress. However, there are a range of fires beyond incipient where structural collapse or flashover may not be imminent or even possible given fire resistance rated construction, etc. Are these building/fire scenarios considered "unsafe" according to the draft ALERT?

3. Most automatic fire sprinkler systems utilize control-mode sprinklers (control mode sprinklers rely on cooling and pre-wetting, allowing the fire to continue to burn in the area of ignition while controlling roof/ceiling temperatures and preventing fire spread until fire fighters arrive or until the fire burns itself out). The draft ALERT makes no mention of manual suppression associated with automatic sprinklers. Automatic sprinklers are very effective with respect to occupant life safety, property protection, and fire fighter safety. Yet, implementation of the recommendations in the draft ALERT would essentially

³ Fahy R, LeBlanc P, and Molis J [2007]. What's Changed Over The Past 30 Years? Quincy, MA: National Fire Protection Association

⁴ Draft NIOSH ALERT: Preventing Deaths and Injuries of Fire Fighters When Fighting Fires in Unoccupied Structures, pg 6

⁵ Executive Summary, Draft NIOSH ALERT: Preventing Deaths and Injuries of Fire Fighters When Fighting Fires in Unoccupied Structures

prohibit an interior attack associated with a fire in a sprinklered building that is unoccupied.

4. "Unoccupied structures, whether in current use, under construction, under renovation, or condemned, must be considered expendable in order to decrease the risk to fire fighters."⁶

Some unoccupied structures should appropriately be considered expendable. However, there are scenarios where the building is of fire resistive construction, has automatic sprinkler protection, where there is no flashover hazard, and/or where the fire is of such size that it can be manually extinguished with a high probability of success, etc. such that the risk of serious fire fighter injury or death is already low and prohibiting any offensive attack in these scenarios provides little additional risk mitigation but could result in significant additional unnecessary property or mission continuity loss.

5. "When considering risk management and initiating offensive or interior operations, fire departments should consider the following rules of engagement, which are outlined in Annex A, Section 8.3.2, of NFPA 1500 [NFPA 2007]:

1. We will risk our lives a lot, in a calculated manner, to save SAVABLE LIVES.
2. We will risk our lives a LITTLE, in a calculated manner, to save SAVABLE property.
3. We WILL NOT risk our lives at all for a building or lives that are already lost.

The incident commander or the incident safety officer is responsible for evaluating conditions at a structure fire and determining tactics for fighting the fire. Risks to fire fighters' lives must be balanced against gains when deciding whether to use an offensive or defensive attack."⁷

This section from NFPA 1500 is inconsistent with the recommendations in the draft ALERT (e.g. from pg 7 of the draft ALERT: - "When operating in an occupied building, NO RISK is worth your life or injury.") The NFPA 1500 guidance does not support the NO RISK guidance in the draft ALERT. Is it the intention of the draft ALERT to support implementation of the NFPA 1500 guidance or exceed it with respect to lower levels of acceptable risk?

6. "Use appropriate criteria for deciding on an offensive or defensive strategy for fire attack during operations at an incident."⁸

It would be very helpful if the draft ALERT focused on what are the appropriate criteria for deciding on an offensive or defensive strategy for fire attack.

NIOSH should be commended for focusing attention on preventing fire ground fire fighter fatalities. The draft ALERT appropriately raises awareness that a significant percentage of

⁶ Draft NIOSH ALERT: Preventing Deaths and Injuries of Fire Fighters When Fighting Fires in Unoccupied Structures, pg 1

⁷ Draft NIOSH ALERT: Preventing Deaths and Injuries of Fire Fighters When Fighting Fires in Unoccupied Structures, pg 6

⁸ Executive Summary, Draft NIOSH ALERT: Preventing Deaths and Injuries of Fire Fighters When Fighting Fires in Unoccupied Structures

traumatic fire ground fire fighter fatalities occur in unoccupied structures. Fire scenarios where fire fighter safety should take precedence over saving property. Many of these fire fighter fatalities are likely preventable and additional efforts should be made to prevent these fire ground fire fighter fatalities. The fire service would likely embrace recommendations which reduce the risk of fire fighter fatalities in true high-hazard/high-risk fire scenarios while preserving the significant benefits associated with an appropriate interior attack in both occupied and unoccupied structures in lower-hazard/low-risk fire scenarios. NIOSH should reconsider publishing the current draft ALERT as a final document.

Thank you for the opportunity to comment.

Yours truly,

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