April 8th, 2021

National Fire Protection Association
Standards Council
1 Batterymarch Park
Quincy, MA 02169-7471

Dear NFPA Standards Council,

Thank you for agreeing to hear our appeal. In advance of next week’s hearing, I have attached data from spills that occurred at 161 FBO locations between 2017 and 2021.

This data supports what the Technical Committee on Aircraft Fuel Servicing (TC) has heard from nearly every sector of the aviation refueling industry – the requirement for additional over-fill protection devices at airport loading racks is not based on a statistical need and the risk they mitigate does not justify their expense.

Out of the tens of thousands of bottom loading operations conducted at these locations between 2017 and 2021 there were 12 overfills. In 11 of the 12 overfill events, the average volume spilled was 10.5 gallons, with a single event of 307 gallons. None of these events resulted in injury or fire and none had an environmental impact as all occurred within containment.

I have also attached several of the more than 150 public comments that were sent to the TC in support of TIA 1558. These comments are not just from FBOs who will be financially impacted, but also from Enforcement Authorities, Special Experts, Installers/Maintainers, and Users.

Thank you for taking the time to review these materials and we look forward to the opportunity to address the Council next week.

Best Regards,

Steve Berry
Manager of Fuel Quality and Safety
National Air Transportation Association
NFPA Mission: To Help Save Lives and Reduce Loss with information, knowledge, and passion.

- The requirements TIA 1558 is seeking to remove are based on a lack of information and knowledge:
  - No data was or has been presented demonstrating the need for additional automatic shut-off protection.
  - Due to COVID and virtual meeting protocols the Technical Committee was prohibited from receiving valuable knowledge about the applicability and scope of these requirements.
  - Over 150 supporting comments were submitted representing nearly every segment of industry including Enforcement Authorities, Special Experts, Installers/Maintainers, and Users.
Fuel Spill Events by Type

Data set: 512 spill events across 161 locations between 2017 and 2021.

- Aircraft Vented Fuel Spill: 272 events
- Spill during aircraft refueling: 148 events
- Leak from tank/nozzle/piping: 64 events
- Spill while sumping: 13 events
- Bottom-Load Overfill: 12 events
- Hose rupture-offload: 3 events
12 Bottom-Load Overfill Events
Among 161 locations between 2017 and 2021

Injuries: 0

Fires: 0

Environmental Impact: 0
(all within containment)
TIA 1558 Final Ballot Results

- **Agree:** 15
- **Disagree:** 10
- **Did Not Vote:** 4

Eligible to Vote
To whom it may concern, I'm writing this in favor of TIA 1558. It is in our facilities best interest that TAI 1558 passes, because of the Pandemic our local FBO's has been hit hard enough with the loss of business and fuel sales. Yes this has been on the books for a while, but the extraordinary cost for this equipment is crazy. We have not in my 20 plus years here at the Arnold Palmer Regional Airport had any issues with the fuel trucks here being over filled. Both of our FBO's have done an outstanding job in training and compliance for many years. If we had any kind of issues with over filling, I would be pushing for this regulation myself, because some places might have issues with there stuff shouldn't punish places that have no problems with there's. Thank you for your time and consideration on this matter.
Sean Phillips
Fire Chief
Arnold Palmer Regional Airport

Sent from my iPad
To Whom It May Concern:

I would like to provide comments in support of the proposed TIA 1558. I strongly encourage the NFPA Aircraft Fuel Servicing Technical Committee to vote in favor of approval.

At Manchester-Boston Regional Airport (MHT) our fixed-base operator (FBO), Signature Flight Support, currently complies with NFPA 407, 2017 edition. All their mobile fuelers are already equipped with functional high-level shut-offs. To add another system to operate side by side with overfill protection is redundant. Signature has spent a lot of time, effort and money into training, mitigation of environmental impact, and equipment.

Additionally, Signature performs high level pre-checks three (3) times during the top off process. The top off area is also located on secondary containment that leads to a water/oil separator. These and other safety measures already in place address the potential for an overfill accident. I personally cannot recollect any spills here at MHT that were caused by the lack of such systems.

I strongly support TIA 1558 as proposed, and encourage you to do the same, thereby eliminating this redundant and costly requirement.

Respectfully,
~Jim

James M. Carrier  
Fire Chief  
Manchester-Boston Regional Airport  
Aircraft Rescue and Fire Fighting Department  
402 Kelly Avenue  
Manchester, NH 03103  
www.flymanchester.com
Foran, Rosanne

From: Chris Harrison
Sent: Wednesday, March 10, 2021 2:24 PM
To: Shared TIAs
Subject: TIA 1558
Attachments: Scanned from a Xerox Multifunction Printer.pdf

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Please see the attached letter in support of TIA 1558 regarding NFPA 407, 2017 and 2022 editions.

Chris Harrison, Fire Marshal
Galveston Fire Department
P.O. Box 779 Galveston, TX 77553 | 823 26th St. Galveston, TX 77550

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10MAR2021

National Fire Protection Association (NFPA)
NFPA 407 Committee
1 Batterymarch Park
Quincy, Massachusetts
USA 02169-7471

Re: NFPA 407 Tentative Interim Amendment (TIA) 1558

Committee Members:

I write this letter in support of the TIA proposed by the National Air Transportation Association (NATA) removing the retroactive requirement from Section 5.1.12 of the 2017 edition of NFPA 407. I respectfully request this consideration under the allowances provided in Section 1.3.4, whereby an Authority Having Jurisdiction (AHJ) can modify retroactive requirements if their application clearly would be impractical, and where a reasonable degree of safety is provided.

As the AHJ for Scholes International Airport, I enforce the adopted provisions of the 2012 International Fire Code. Scholes was recognized as the Texas Department of Transportation General Aviation airport of the year in 2018. The airport is home to 1 Fixed Based Operator, 2 air charters that service the Gulf of Mexico oil platforms, and a robust number of private pilots that home base from here. There are approximately 35,000 operations per year, and approximately 800,000 to 1.2 million gallons of fuel dispensed in the same timeframe.

Currently, our existing fuel systems utilize protected tanks and fuel trucks. All have redundant safety systems that are operational and in compliance with the codes at the time they were installed. There have been no reported spills or hazardous events involving fueling that I can find record of.
I respectfully request that you grant the proposed amendment and remove the potentially burdensome requirement for existing systems to retroactively install additional safety measures that would create a financial hardship despite the proven track record of safety. As noted by NATA, thousands of General Aviation airports like Scholes International Airport have been operating safely under the existing provisions of previous editions of NFPA 407. I ask that you recognize that safety record and the current safety systems involving aircraft fueling by granting this amendment.

If you have any questions or require further information, please do not hesitate to contact me.

Respectfully,

Chris Harrison
Assistant Fire Chief/Fire Marshal
NFPA 407 Review Committee,

The City of Burnet Fire Marshal’s Office and the Operators and Managers of Burnet Municipal Airport-Kate Craddock Field wholeheartedly support the passing of this TIA.

Aside from the financial burden that TIA 1558 would erase for small FOBs and Municipal Airports, it corrects a revision that prevents an incident that could only occur through gross negligence or a deliberate act and more importantly lacks the statistical or anecdotal information that typically triggers a revision in the place.

Thank you for recording our support for TIA 1558.

Respectfully,

JOHN PAUL ERSKINE
Fire Marshal
City of Burnet, Texas
Dear Sir / Madam:

I am an environmental consultant and also a National Air Transportation Association (NATA) member. Over the course of the last 15 years, I have written over 300 Spill Prevention Control and Countermeasures (SPCC) Plans across the nation and have participated in several committees for the NATA over the years. Recently, there has been a lot of discussion regarding the new revisions to the National Fire Protection Association (NFPA) Standard 407, Standard for Aircraft Fuel Servicing. Very few facilities that I have visited have the automatic shutdown system (Scully System) that is required under new standard. Even though the NFPA is trying to limit the impact to only Part 139 airports, it will have a more far-reaching effect because all airports that receive federal grants under the Airport Improvement and Passenger Facility Charge (AIP) program must comply with NFPA-407 in order to receive the grants. This grant money is extremely important for all airports, but especially for small airports. Many of these small airports are in small rural counties and there is not sufficient funding for projects locally without the AIP program. It is truly a lifeline to keep these small airports open to the public. Placing a requirement for an expensive automatic system on these small airports would be devastating. It is my understanding that the automatic shutdown systems required by the new NFPA-407 standard would cost between $6,000 and $10,000 per fuel farm and an additional $2,500 to $3,500 per refueler truck.

Under the previous standard, bottom loading refueler trucks were required to be equipped with a high level shut-off device which is checked before each loading operation begins. This system has worked very well for the aviation industry and especially for small airports in that it is built into the refueler truck and the airport does not need to invest in additional equipment. In comparison to the EPAs requirements for loading / unloading areas under the Spill Protection Control and Countermeasures (SPCC) Rule, there is sufficient flexibility in the rule to allow both curbed containment areas at the tank farm and also use of the spill kit (active containment system) to respond to spills. This flexibility is very important for these small airports. Many of these small airports have the fuel tanks on the edge of the ramp and fuel deliveries and refueler filling will take place right in front of the tank system. I would encourage the NFPA to provide some flexibility in the standard to allow a more simple solution for smaller airports.

The NATA has submitted TIA-1558 to request some relief from this new standard. I hope the committee will consider the NATA’s request and provide that needed relief.

George S. Gamble, PE
2G Environmental, LLC
My name is Brian R. Wolfel, PE and am writing to you on behalf of GAI Consultants, Inc. as well as our aviation sponsors and clients in support of proposed TIA 1558. To require all existing load racks and mobile refuelers to be retrofitted with automatic shut off systems creates an unreasonable financial burden while doing little to reduce actual risk. The overfilling of mobile refuelers is not something that occurs with such frequency as to prompt the excessive and costly regulatory enforcement that the current language in section 5.1.12, and 6.1.3.12.2.7 through 6.1.3.12.2.9 of the NFPA 407 mandates. All at a time when our industry is already hurting from the impacts of this global pandemic. Safety standards and mechanical safeguards are already in place which prevent the overflow of mobile refuelers and we strongly encourage the NFPA Aircraft Fuel Servicing Technical Committee to vote in favor to approve TIA 1558.

Brian R. Wolfel, P.E.
Engineering Manager
203 W. Weber Avenue, DuBois, PA 15801-1859
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NFPA Standards Secretariat:

Please find attached comments from Airports Council International-North America supporting TIA 1558 regarding the 2017 edition of NFPA 407, Standard for Aircraft Fuel Servicing, proposed by Steve Berry from the National Air Transport Association.

We appreciate the opportunity to submit these comments on behalf of North American airport operators. Please contact me if you have questions.

Regards,
Chris

Christopher Oswald
Senior Vice President, Safety and Regulatory Affairs
Airports Council International – North America
1615 L Street NW, Suite 300 | Washington, DC 20036
| airportscouncil.org
facebook | twitter | linkedin

ACI-NA recently switched web domains from aci-na.org to airportscouncil.org. Please be sure to update my contact information to reflect my new email address – coswald@airportscouncil.org

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March 17, 2021

Ms. Dawn Bellis  
Director and NFPA Standards Council Secretary  
National Fire Protection Association  
800 Independence Avenue  
Washington, DC  20591  
(Submitted via email to TIAs_Errata_Fls@nfpa.org)

Dear Ms. Bellis:

ACI-NA represents the local, regional and state governing bodies that own and operate commercial airports in the United States and Canada. ACI-NA is the largest of the five worldwide regions of the Airports Council International (ACI). Our members represent more than 300 airports operating in the United States and Canada and nearly 400 aviation-related businesses.

We are writing to today in support for the proposed Tentative Interim Amendment (TIA) 1558, proposed by Steve Berry from the National Air Transport Association (NATA), regarding NFPA 407, Standard for Aircraft Fuel Servicing.

As Mr. Berry notes in the TIA, requirements to install additional shutoff systems on aircraft fuel vehicle servicing racks included in the 2017 version of NFPA 407 do not address demonstrated fire safety issues and would necessitate costly retrofits of both fuel racks and fueling vehicles with duplicative equipment.

These retrofits would be required for all U.S. airports certificated under the provisions of 14 CFR Part 139 and any airports that have committed to FAA grant assurances. This is because the FAA incorporates NFPA 407 standards by reference in Advisory Circular (AC) 5230-4B, Aircraft Fuel Storage, Handling, Training, and Delivery. Over 3,000 airports in the United States are facing new regulatory requirements as a result.

Airport operators and their tenants—including fixed base operators, ground service providers, and airlines—have experienced unprecedented and continuing financial hardships as a result of the COVID-19 pandemic. Implementation of costly new mandates without clear safety justification are inappropriate at any time, but are starkly so in the current environment.
Again, on behalf of the airport community that ACI-NA represents, we appreciate the opportunity to provide our support for TIA 1558 and encourage the Technical Committee to give it due consideration. Please contact me either at coswald@airportscouncil.org or 202.293.4539 if you have questions or need additional information.

Sincerely,

Christopher J. Oswald
Senior Vice President, Safety & Regulatory Affairs
To Whom It May Concern: Attached please find Michigan Association of Airport Executives letter in regards to NFPA 407 - Standards for Aircraft Fuel Servicing
Date: March 4, 2021

From: Michigan Association of Airport Executives – Board of Directors (MAAE)

To: Secretary, Standards Council
National Fire Protection Association – 407 Technical Committee (NFPA)

Re: NFPA 407 - Standards for Aircraft Fuel Servicing
Letter of Support for pending Tentative Interim Amendment 1558 (TIA 1558)

Michigan Association of Airport Executives (MAAE) is the primary professional organization in support of Airport Executives, Airport Board Officials, Airport Employees, Aviation Service Consultants, Aviation Vendors and Suppliers across the State of Michigan. A primary goal of MAAE is to assist members with fulfilling their responsibilities to the airports and communities they serve. In support of those efforts, the MAAE Board of Directors is charged with analyzing proposed regulatory changes that may impact MAAE members and their airport operations.

Members of the MAAE Board have recently evaluated NFPA 407 - 2017 edition and the proposed 2022 edition, sections 5.1.12, 6.1.3.12.2.7, 6.1.3.12.2.8 6.1.3.12.2.9 and Table C.1. Likewise, MAAE Board Members have also evaluated the responding Tentative Interim Amendment (TIA 1558) - - which has been submitted on behalf of National Aviation Transportation Association (NATA). In short, members of the MAAE Board have subsequently voted unanimously in support of the proposed changes to NFPA 407 - - as set forth within TIA 1558. In doing so, it is believed that existing safety mechanisms and best practices are in place without mandating requirements for retrofitting existing fuel storage facilities and mobile refuelers with additional automatic shutdown systems.

In short, this letter is submitted to fervently encourage members of NFPA 407 Technical Committee to adopt the proposed changes recommended TIA 1558.

Sincerely,

Gary W. Kellan
President
Good evening,

Please accept the attached letter in support of the TIA 1558.

Thank you very much.

Jeremy D. Valcich  
Director, Regulatory Affairs  
American Association of Airport Executives  
The Barclay Building  
601 Madison Street  
Alexandria, VA 22314
March 17, 2021

Aircraft Fuel Servicing Technical Committee
National Fire Protection Association
One Batterymarch Park
Quincy, MA 02169
TIA_s_ERRATA_FIs@nfpa.org

RE: Support for NFPA 407 Tentative Interim Amendment 1558

Dear Committee Members:

The American Association of Airport Executives (AAAE), the world’s largest professional organization for airport executives, would like to express our full support for the proposed Tentative Interim Amendment (TIA) 1558 and highly encourage the National Fire Protection Association (NFPA) Aircraft Fuel Servicing Technical Committee to vote to approve the TIA.

Many of our airport members have expressed strong concerns over the new provisions in NFPA 407, Standard for Aircraft Fuel Servicing, that are set to take effect on June 2. First, we are unaware of any studies or data supporting the need for additional automatic shutdown systems at airport loading racks. Neither NFPA nor any other organization conducted a safety risk assessment to determine whether the systems would improve safety. This new requirement was effectively created without broad industry review, discussion, or comment. The short-notice compliance period will also be an issue for many airports because there are a limited number of system manufacturers capable of retrofitting these systems by the upcoming deadline.

Furthermore, the changes proposed will impose significant, unnecessary financial obligations on airports during a time when the aviation industry is facing unprecedented challenges, including the need for additional financial support. Airports have to remain open and operational, make debt service payments, and invest in increased public health mitigation measures, among many other commitments. According to one estimate, it will cost airports nationwide more than $100 million to install this additional, yet unnecessary, equipment. AAAE believes that this added cost for airports is untimely and unjustified given the lack of demonstrated safety value.

AAAE strongly urges the NFPA Aircraft Fuel Servicing Technical Committee to consider the significant operational and financial impacts these new provisions will have on airports, particularly with no added safety value, and approve the TIA.
Please do not hesitate to reach out if you have any questions or require any additional information.

Sincerely,

Jeremy Valcich
Director, Regulatory Affairs
Secretary, Standards Council,


Best regards,

Greg Banks
Manager of Operational Safety & Fire
Chattanooga Metropolitan Airport
01 March 2021

Comment for TIA 1558

The Chattanooga Metropolitan Airport Authority supports this TIA in its entirety with detail as follows:

We agree with Mr. Berry’s substantiation. After our own research, we have found no statistical data showing that the requirements of Section 5.1.12 and related requirements in Section 6.1.3.12.2 are necessary or justified. We also agree with Mr. Berry that intentional non-compliance and gross negligence of the operator will still negate existing and “to-be-required” automatic shutoff devices, no matter how simple or complex we choose to design and/or regulate them. Proper training and oversight of fueling operations and current equipment requirements already provide an environment free from fuel spills due to overfilling.

In reviewing of the previous attempt to amend the above sections (TIA 1539 Final Ballot), we believe that a comment by one of the technical committee voters sums the issue at hand well for TIA 1558 – that this rule falls outside of NFPA 407 - Standards for Aircraft Fuel Servicing and falls directly within NFPA 30 – Flammable and Combustible Liquids Code, Section 28.11. This rule relates to bulk loading and unloading from storage facilities to tank vehicles and not aircraft fuel servicing.

Further, we agree with Mr. Berry’s statement of emergency nature. General aviation is the backbone of the US aviation system. This new Advisory Circular’s mandatory adherence to NFPA 407 will cause significant financial burden to those nearly 3,000 AIP-eligible airports in the basic ruleset provided by the document. A portion of this burden can be lifted by passing this proposed TIA.

We see that several committee members keep referring to overfills being a continuous issue while reviewing several committee’s notes from other similar proposed TIA’s. We haven’t had any on our airfield and after research, can’t find any related material. If this is such an issue, we would appreciate relevant data showing that it is an ongoing issue on a national level.

Sincerely,

Terry Hart
President
Chattanooga Metropolitan Airport Authority

Greg Banks
Manager of Operational Safety & Fire
Chattanooga Metropolitan Airport Authority
Good afternoon,

Please consider the attached request on behalf of the Collier County Airport Authority regarding approval of Tentative Interim Amendment (TIA) 1558 to NFPA 407- Standard for Aircraft Fuel Servicing. Approval of this TIA is critical, particularly to smaller General Aviation airports like the Marco Island Executive Airport, Immokalee Regional Airport, and Everglades Airpark.

Respectfully,

Andrew Bennett, CM, CPM | Executive Manager – Interim
Collier County Airport Authority
2005 Mainsail Drive | Naples, FL 34114

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March 10, 2021

Mr. Cary Skinner, Chair
National Fire Protection
Association 407 Technical Committee
5939 North West Circle Avenue
Chicago, IL 60631

Dear Mr. Skinner:

Please consider this request on behalf of the Collier County Airport Authority regarding approval of Tentative Interim Amendment (TIA) 1558 to NFPA 407- Standard for Aircraft Fuel Servicing. Approval of this TIA is critical, particularly to smaller General Aviation airports like the Marco Island Executive Airport, Immokalee Regional Airport, and Everglades Airpark.

Current fueling systems at Collier County's three general aviation airports already utilize a double-redundant system to prevent spills and accidents from occurring, meaning that the existing regulations would simply add another level of redundancy to an already safe system, with a proven safety track record. We are currently unaware of any incidents that have occurred with a double-redundant system like ours and would request that the committee share any information about any such incidents to better understand the risk.

The current unamended standard would have profound effects on airports large and small, including our three airports. The loss of access to this critical fueling equipment while it is being retrofitted for a third redundant system would pose a serious operational issue for the airport, as we are the sole provider of fuel on the airport premises.

Additionally, based on the current number of fuel trucks and fuel farm loading racks at our facility, we estimate the financial impact of retrofitting our existing equipment to be at least $40,000.

While the Collier County Airport Authority remains committed to purchasing new equipment that meets or exceeds the latest safety standards, retrofitting our existing equipment would have serious operational and financial implications for our facility.

In the future, issues like this could likely be resolved by first consulting with and obtaining feedback from stakeholders within the aviation and airports industry prior to the publication of proposed regulations.
We appreciate your consideration in the matter and urge you to approve TIA 1558 so that the Collier County Airport Authority can continue to meet critical safety standards while still providing the same excellent level of service to our customers.

Sincerely,

Andrew H. Bennett
Executive Airports Manager – Interim
**Foran, Rosanne**

**From:** Margie James  
**Sent:** Wednesday, March 17, 2021 7:41 PM  
**To:** Shared TIAs  
**Subject:** TIA 1558 SUPPORT

I am the owner of Rebel Services, LLC. My company offers sales, service, repair and installation of aviation fueling equipment and systems. We have been overwhelmed with customer request for information as well as the outcry over estimated cost for automatic shutdown systems at airport loading racks that are also compatible with mobile Refuelers per NFPA 407. We service both large and small airports and each have concerns. With Covid winding down, business is not quite where it use to be for most of our airports and funding is not available for unjustly cost such as this especially considering all are single compartment trucks and already have not one but two overfill protection in place if built within the last two years. The float and jet level sensor has been successful in preventing overfill.

In recent years we have made great strides in educating and communicating with airports on the importance of good quality fuel and safety measures. We are seeing an influx of airports becoming compliant with industry standards due this education and communication of preventive maintenance programs and Quality Control Programs. To throw in a costly enforcement such as this could potentially encourage noncompliance in all areas of safety for airports due to the overwhelming cost burden.

Rebel Services currently repairs and encourages replacement of any and all existing high-level shut off systems that do not function properly, however, most airports are acutely aware and up-to-date on required checks and historically have contacted us or other service companies immediately of necessary repairs because they are very familiar with their system and commonly checking and testing their systems.

I can not name a single instance of a truck overfill and spill and I have been in the industry since 2001. I can not in good conscience state to my customers this requirement is justifiable and sincerely request you consider relieving thousands of general aviation airports, FBOs, and fuel farm operators from the costly, and unnecessary requirements found in sections 5.1.12 and 6.1.3.12.2.7 through 6.1.3.12.2.9 of the NFPA 407 and allow for the continued safe and effective bottom loading operations they have been performing for years.

Thanks,
Margie James
From: David Kucko  
Sent: Monday, February 15, 2021 11:15 AM  
To: Shared TIAs  
Cc: Tom Auten; Kjell Lavoll  
Subject: Letter of support regarding TIA #1558 - NFPA 407  

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Dave

HAWTHORNE  
GLOBAL AVIATION SERVICES

David Kucko | General Manager  
Hawthorne Global Aviation Services  
1723 McCollum Parkway | Kennesaw, GA 30144  
| www.hawthorne.aero

Building Customer Loyalty One Experience At A Time
February 15, 2021

RE: Support of TIA #1558 to upcoming NFPA 407

To whom it may Concern:

I would like to voice my support of TIA #1558 that has been submitted by the NATA in regards to the upcoming release of the latest revision of NFPA 407.

As a General Manager of many Fixed Based Operations (FBO’s) over the past 25 yrs. at airports throughout the country I have never seen any evidence of the problem of over fueling aviation fuel trucks while bottom loading at airport loading racks at any airports that I have had operations at. Currently this consists of over 15 different airports, both commercial and GA reliever airports, which I have operated fuel loading racks at. Historically on average at these airports we have loaded anywhere from 2 up to 15 trucks per day utilizing the current NFPA procedures that have been in place for years for aviation fuel loading racks. This has happened seven days per week / 365 days per year. So, conservatively on average I have been in charge of well over 63,000 truck loadings from aviation fuel farms in my career. In that time I have never had one fuel spill or over fueling event from any aviation bottom loading rack. In fact, in my career I have only heard of one instance where the safety procedures currently in place (i.e.: high - level shutoffs and NFPA approved well defined bottom loading procedures) have not prevented an over fueling situation and subsequent fuel spill while bottom loading.

The recommendation of requiring “scully” type systems on aviation fuel loading racks and refuelers will place an unwarranted expense and burden on the industry that does not have a history of any bottom loading over fuelings or fuel spills at airport loading racks. This is clearly an instance of trying to solve a perceived problem that does not exist. If I am in error of this fact I would like you to show me the examples where this is a problem as I can show at a minimum of 63,000 examples over my career personally where it is not an issue.

Thank you in advance for your consideration of this TIA # 1558 and please feel free to reach out to me should you require any further info.

Sincerely,

David M. Kucko
General Manager
To Whom It May Concern:

I am writing to show my support for proposed TIA 1558. As a small business in South Dakota the impact of the costs to comply with NFPA 407’s retroactive requirements would significantly impact our ability to serve our customers.

Westjet has been in business for over 70 years and during those 70 years we have had countless fuel trucks and multiple fuel storage tanks. On average we pump 10,000-25,000 gallons per day and fill between 3 and 10 fuel trucks per day from our fuel storage facility. We have never had a failure of the high-level automatic shut off. We test all shutoff systems regularly in accordance with current regulations and requirements from our customers which include all of the major airlines. Each fuel truck and each tank at our fuel storage facilities have deadman-style switches that must be held and attended to when in operation. At our facility there has never been a failure of the high level shut-off systems and thus there have not been any related fuel spills.

The cost of the Scully-type system would be significant, tens of thousands of dollars, for our facility which includes 4 fuel farm tanks and six fuel trucks. We have already been faced with a significant downturn in operations due to COVID-19 and have had to change the way we operate as a result. Another large expense to us as an operator would impact our ability to serve our community.

In addition to the cost I am extremely concerned about the reliability of the systems. Westjet is located in a very cold climate and through my research I have found there could be a disruption in the system due to design of the systems and the impact on them in cold weather. If the system shuts down during cold weather due to moisture freezing we could be days or weeks without the ability to unthaw the system and would be without fuel in our trucks.

Being a small business in rural South Dakota we have also found other significant challenges in retrofitting this system to our tanks and trucks. There are no facilities in our state or the surrounding area. It could take months or even years for all of our tanks and trucks to be outfitted if this is passed, making much of our equipment unusable by June 2021.

I fear for us as well as other FBOs and fuel providers throughout South Dakota and other rural areas. The impact of this would be devastating for operators of all sizes from both a cost perspective as well as the ability to find a contractor to install the equipment. Should the Scully-type system freeze due to our cold climate it would cost us, the Airport and its tenants and clients tens of thousands of dollars in lost revenue and contract violations.
It is for the above reasons I fully support TIA 1558.

Regards,

Miranda Maleki  
Vice-President Operations  

Westjet Air Center, Inc.  
4190 Westjet Drive  
Rapid City, SD  57703  
www.westjetair.com
February 19, 2021

TIAs_Errata_Fls@nfpa.org
RE: In support of TIA 1558 seeking further changes to NFPA 407

To whom it may concern,

I am writing in support of the National Air Transportation Association’s (NATA) call for complete removal of the requirements for automatic shutdown systems at airport loading racks that are also compatible with mobile refuelers.

Million Air is the third-largest FBO network in North America, located at airports in the United States, Canada, Columbia, and the Caribbean. Million Air FBOs have been providing over 35 years of services (including aircraft fueling, aircraft parking and storage, charter, GSE maintenance, and aircraft maintenance) to general aviation and corporate aircraft owners and users, commercial air carriers, and the military.

Million Air’s commitment to safety includes the NATA Safety 1st PLST program as well as a proprietary Learning Management System for initial and recurrent training.

All refueling trucks are equipped with automatic high-level shut-off devices. The devices are tested at the beginning of every bottom-loading event by way of pre-check valve. If the pre-check were to fail, bottom-loading activities would cease immediately, refueling truck would be removed from service, repaired, and then returned to service.

In addition to the automatic high-level shut-off device, the fuel storage facility is equipped with dead-man controls. The dead-man is engaged/disengaged by the same trained employee who is performing the bottom loading activity. The dead-man devices are tamper proof, cannot be blocked open, and are on a short tether keeping them within feet of the refueling truck and fuel farm controls. Truly a fail-safe operation!

As a direct result of Million Air’s commitment to safety, and the equipment already in place, there has been proven success in the reliability and safety at all Million Air locations. There have not been any events of overfilling equipment or high-level shut-off device malfunction resulting in fuel spills. Plainly put, the procedures have never failed.
Million Air stands behind the National Air Transportation Association’s position on TIA 1558, and urges the NFPA to reconsider this unnecessary addition of equipment and expense to the FBOs.

Sincerely,

John Bridi

Director of FBO Support

Vice President of International Operations

7555 Ipswich Rd.  Houston, TX  77061
Good afternoon,

My name is Zach Van Meir and I am the current Line Supervisor at Base Operations at Page Field. I have close to 10 years experience in airport operations and refueling of aircraft and I wanted to give my thoughts and concerns from a fueling viewpoint about the proposed requirement of the primary electronic shut off devices for fueling equipment and fuel facilities.

First off, let me start with my qualifications in aviation refueling. My career in aviation refueling and FBO services began back in 2012 when I was hired as a line technician at University Air Center in Gainesville, FL. I worked at this location for almost 7 years progressing from a line technician to the Assistant Operations Manager of the FBO. I handled all the QA for all fueling equipment which consisted of 2 5,000 gallon jet fuel trucks, 1 3,000 gallon jet fuel truck and a 1,500 gallon avgas truck. We averaged over 4 million gallons of fuel sold each year and never had a hi level sensor fail or overflow a refueling vehicle or fuel farm tank. We would refill refueling equipment at least 3 times a day with no issue of overfilling. So you can imagine my surprise when I heard of the proposed requirement of a primary and secondary system when "topping off" a fuel truck.

Currently, I have been at Base Operations for close to 6 months now and the story remains consistent. We've never had a truck overfill at this airport from the fuel farm. Last year we sold just under 2 million gallons of fuel and are on track to obliterate those numbers this year. The hi level shut offs that are currently installed on the equipment work perfectly when it comes to keeping a truck from overfilling.

I hope my experience in the aviation industry can further assist in the decision making of the proposed changes that may take effect FBO's and airports across the nation. To me, if it is not broken, well then let's not try to fix it.

--

Zachary Van Meir
Line Supervisor
Lee County Port Authority
Base Operations at Page Field

Please note: Florida has a very broad public records law. Most written communications to or from Port Authority employees and officials regarding Port Authority business are public records available to the public and media upon request. Your email communication may be subject to public disclosure.
April 7, 2021

Dear NFPA Standard Council Members,

As members of the Technical Committee on Aircraft Fuel Servicing (AIF-AAA), we are joining together to ask that you overturn the ballot results of TIA 1558. The issues surrounding this TIA are significantly unique and represent a serious threat to the NFPA process if not addressed. These issues are:

1. The committee believed, incorrectly, that the requirements of 5.1.12 (automatic shutoffs at loading racks) were narrowly tailored to be effective only at the largest airports (139 Certificated). This was highlighted clearly during the second draft meeting. It is reasonable to assume that if the committee knew these requirements were broadly applicable or even possibly applicable, we may have taken alternative approaches.

2. The committee believed, also incorrectly, that the problem of overfilling refuelers was a widespread problem. This was investigated recently and found to not be the case. Due diligence was not given to this subject and should have been done prior to the addition of the requirement.

3. The industry, upon realizing that these beliefs were incorrect attempted to provide input during the second draft committee meeting, through NATA, but were prohibited from providing this important information due to time limitations of the virtual second draft meeting.

4. Voting on two separate TIA’s, written to address this problem, resulted in a majority of the TC members that voted, voting in favor of the TIA in both cases.

Considering these facts and the overwhelming input from aviation business, fire authorities, professional engineers, airports, state, and national aviation trade associations, FBOs and fuel suppliers we believe not acting to approve TIA 1558 risks significant harm to the aviation industry, especially small businesses, and to the trust in the NFPA process itself.

We cannot drive relentlessly forward, based solely upon process, in light of such irregularities in process and given the overwhelming input from the industry.

Respectfully,

Roy Creley
Fuel Systems Specialist
Lakes Region Environmental, Inc.

The following 407 TC members names indicating support for this appeal have been included with permission of each person:

1. Michael Klutz, PE (Past Chairman NFPA 407 and current Chairman SAE AE 5C, Aircraft Ground Fuel Servicing Committee.)
   Robert and Company
2. Michael Loveridge  
   Menzies Aviation
3. Steve Thickstun  
   Advanced Fuel Systems, Inc.
4. Jim Gammon  
   Gammon Technical Products
5. Ron Pattie  
   Prime Flight
6. Tom Boriack  
   Cla-Val Co.
National Fire Protection Association  
Standards Council  
1 Batterymarch Park  
Quincy, MA 02169

Re: TIA 1558, NFPA 407: Standard on Aircraft Fuel Servicing, 2017 and proposed 2022 Editions

To the Standards Council,

I write in opposition to the appeal of TIA 1558, as proposed by the National Air Transportation Association (NATA).

This TIA is the second time this Technical Committee has seen a TIA on overfill prevention systems for aircraft fuel servicing tank vehicles in five months. As the first TIA (1539) was not accepted by the Technical Committee, and was not overturned by the Standards Council, this second attempt instead broadens the scope of the original submittal and was again not accepted by the committee.

As stated during testimony to the Council with the prior TIA 1539, the requirement for overfill protection systems was initially proposed by a committee member in 2014 at the First Draft Meeting for the 2017 Edition of NFPA 407. This section passed ballot and received no public comments. The subject of overfill prevention systems was again brought up by the Technical Committee at the Second Draft Meeting in 2015. The language requiring overfill prevention systems again passed at Second Draft. No NITMAMs were filed, and the document as a whole was published as a consent standard in 2016.

As the Technical Committee acknowledged the financial impact of the retroactivity requirement, the requirement provided a five-year phase in period to allow airports that did not have an overfill prevention system adequate time to prepare for, and to install such systems. This phase-in period will end on June 2, 2021 (five years from the effective date of the 2017 Edition of NFPA 407). In the intervening years since the publication of the 2017 Edition, no Public Inputs were received by NFPA to modify the implementation of this section.

A committee member made a motion at the First Draft Meeting in 2019 to modify the retroactivity requirement of the overfill prevention systems. This motion was defeated by the committee during the meeting and was not included in the First Draft. No Public Comments were received on the topic. Parallel to the submission of the TIA, a motion was again made at the Second Draft Meeting in 2020 to remove the retroactivity requirement. This was again defeated by the committee during the meeting. Subsequently, the TIA was submitted, and was not accepted by the Technical Committee.
At the Second Draft Meeting for the 2022 Edition of NFPA 407, the content of TIA 1539 (but not the actual TIA as it had not been officially submitted yet) was addressed by the Technical Committee as new business at the conclusion of addressing Committee Inputs and Second Revisions, with the discussion lasting over an hour and twenty minutes.

The overfill prevention system that this TIA seeks to eliminate has been a requirement of NFPA 30 since at least 1997 (sections 5.6.10.6 in the 2000 edition, 7.6.10.6 in the 2003 edition, and 28.11.1.7 in the 2008 and newer editions). The requirements of NFPA 30 apply to airport fuel facilities (407-2.1 and -2.2). These systems have been a requirement for airport fuel facilities for decades. As NFPA 407 is more specific, its provisions can modify those of the more general NFPA 30. The more specific NFPA 407 requirement in the 2017 Edition phased in rack-based overfill prevention systems with a five-year implementation period to allow existing facilities to comply not only with the “new” requirement in NFPA 407, but the existing requirement in NFPA 30. Removal of this requirement in NFPA 407 would default back to NFPA 30, rendering noncompliant all facilities constructed since at least 1997.

These systems, where in use, essentially eliminate overfills of fuel vehicle cargo tanks. The appellant is correct in that there is no data to support that these systems are absolutely required. Direct experience of Technical Committee members from the Enforcer community – that which responds to the incidents that are caused by overfills – indicates that there are sufficient overfill incidents that these systems should be in use. The counter argument of anecdotal data from small airports claiming that they have never had a spill is difficult to accept by those Committee members who have seen said incidents with their own eyes.

A reasonable avenue exists for appeals at the state and local level where AHJs adopt the 2017 Edition after the implementation date. The 2017 Edition of NFPA 407 clearly identifies a five-year phase-in period, this provides adequate justification for an extension for airports where this phase-in period does not exist due to adoption dates.

The appellant writes that the use of NFPA 407 by the Federal Aviation Administration (FAA) would cause an adverse impact on the aviation community. If this is the case, then the issue should be taken up with the FAA, not with NFPA in a bid to reduce the level of safety at airports.

Respectfully submitted,

Jeremy Souza, P.E. (MA)
Date: April 9, 2021

To: National Fire Protection Association Standards Council
1 Battery March Park
Quincy, MA 02169-7471

From: Gavin Horn, PhD; UL Firefighter Safety Research Institute
6200 Old Dobbin Lane, Suite 150
Columbia, Maryland 21045 USA
ulfirefightersafety.org

RE: UL FSRI research information regarding NFPA 1403 TIA Log No. 1552

Representing UL FSRI, I would first like to commend Mr. Ryan McGill, the International Association of Fire Fighters (IAFF) and all those engaged in this important conversation around training fuels used in live-fire firefighter training. The UL Firefighter Safety Research Institute (FSRI) has, since our inception, focused on research to support firefighter safety and health, and this dialogue is of utmost importance to our organization.

This testimony is submitted to provide information pertinent to the NFPA Technical Committee on Fire Service Training’s consideration of TIA Log No. 1552 for NFPA 1403, Standard on Live Fire Training Evolutions. We feel that this discussion is critically important to support firefighters in conducting live-fire training with as much information as possible to make safe and healthy decisions. In particular, the use of engineered wood products, such as oriented strand board (OSB) has been a topic of conversation for several years. The decision to add any fuel to the list of those not allowed in live-fire training should consider the risks and benefits of other options that remain for firefighter training, particularly with regard to the relative thermal and chemical hazard that they may present to firefighters or fire training staff.

We have received a request from members of the NFPA 1403 Technical Committee to briefly describe results from a study we collaborated on with the Illinois Fire Service Institute (IFSI) and the National Institute for Occupational Safety and Health (NIOSH) that produced two manuscripts that can make valuable contributions to this discussion:


The purpose of this study was to support fire training decision making using a common coordinated attack fire scenario in three different training environments:

- Pallet & straw fuels in a traditional concrete training structure.
- OSB, pallet & straw in a metal container-based training structure. Two types of OSB were used in this study, labelled alpha and bravo.
  - Alpha was commonly available OSB at the time of the study.
  - Bravo was included in half of these scenarios because some members of the fire service believed this product was a safer alternative.
- Theatrical smoke & digital fire in a metal container-based training structure.

The ultimate goal of the work was to describe typical training environments and to compare these results to similar measurements collected from a simulated fireground study and provide exposure control recommendations. This study incorporated human subjects to conduct firefighting operations and fire instruction roles and times to complete critical fireground operations were determined by the pace and techniques of each group. It is important to note that this study did not isolate the impact of any one of these parameters (e.g. training fuel, training structure, firefighting operations), other than alpha and bravo OSB individually included in the same training structure.

This study adds to the relatively small body of literature that helps to characterize how fire training may expose firefighters and instructors to hazardous airborne chemicals. We conducted area and personal air sampling during three instructional scenarios per day. Personal air samples were analyzed for polycyclic aromatic hydrocarbons (PAHs), volatile organic compounds (VOCs), and hydrogen cyanide during live-fire scenarios. Area air samples were analyzed for acid gases, aldehydes, isocyanates, and VOCs. When comparing results by type of scenario, personal air concentrations of benzene and PAHs were higher for bravo OSB scenarios compared to other fire training scenarios. Median area air concentrations of aldehydes and isocyanates were also highest during the bravo OSB scenario, while pallet and straw scenarios resulted in the highest median concentrations of certain VOCs and acid gases. These results suggest usage of self-contained breathing apparatus (SCBA) by both instructors and firefighters is essential for the total duration of training fires to reduce potential inhalation exposure. Additionally, efforts should be taken to clean skin and clothing as soon as possible after live-fire training to limit dermal absorption as well. PAH’s, in particular, will be present in particulate form where they may contaminate skin (including transfer from gear to skin) and can be absorbed into the body if not rapidly removed. These contamination control measures are important to incorporate regardless of training fuel as maximum area and personal air concentrations of many of the measured compounds were above applicable short-term occupational exposure limits during the fire period of both the pallet & straw and OSB scenarios.

To summarize the findings related to fire service members’ absorption of PAHs and benzene during these training exercises, conclusions from the International Journal of Hygiene and Environmental Health manuscript are quoted below:

“Biological monitoring can be affected by a number of factors, such as physiological makeup and metabolism of workers, work-rate intensity and duration, and PPE use and maintenance. Thus, it
is prudent to be cautious when comparing results between studies. Overall, this study suggests that live-fire training may expose firefighters and instructors to hazardous chemicals. Their dose will depend on the number of training fires and type of fuel package. Instructors' PAH exposures may be higher from repeated training fires than responding to a single emergency residential fire. Likewise, training fires will result in the uptake of benzene and other VOCs. Contamination on turnout gear may also contribute to the biological uptake of PAHs upon subsequent use. Exposures from training fires over time could increase firefighters' and instructors’ risk of developing certain types of cancer. Efforts should be taken to reduce these exposures, including donning SCBA before approaching the structure, cleaning skin as quickly as possible (preferably immediately after exiting the structure), laundering turnout gear after live-fire training (or field decontamination if laundering cannot be done), showering as soon as possible following training, and selecting training fuels to provide realistic training while limiting unnecessary exposures for firefighters and instructors.”

This study should be viewed as pilot work, and suggests that the type of training, fuel package, and number of fire responses may indeed affect the levels of PAHs and other hazardous compounds absorbed by firefighters and instructors. Any live fire scenario will produce hazardous substances, including carcinogens, and those risks need to be properly managed using a variety of control measures.

The NFPA 1403 committee has been requesting information on the chemical exposure to firefighters and training officers. In particular, rigorously collected data on the use of engineered wood products in training fire environment using repeated trials and consistent structures is limited. Furthermore, there are concerns of unintended consequences for removing certain fuels without having a well described alternative that is readily available (now or in the future). To meet that need UL FSRI applied for and was awarded a FEMA Assistance to Firefighters Grants (AFG) Program Fire Prevention & Safety (FP&S) Research & Development (R&D) grant in fall 2020. This study is titled Training Fire Exposures from the Source: Developing a Risk-Benefit Framework and is designed to fill in gaps in the existing literature to focus directly on the source of the training fire exposure - training fuels. The abstract for this proposal is included here:

**Purpose and Aims:**
The purpose of this project is to reduce firefighter fatalities and injuries through improved understanding of holistic live-fire training risks and benefits. Chemical contaminants during training may result in carcinogenic exposures similar to typical fire ground activities, yet there exists limited understanding of how fuel source impacts this risk or how this risk can be balanced against the potential benefits of improved training experiences that can reduce injuries on the fireground.

**Relevance:**
Although epidemiological data reveal an increased risk of some cancers among firefighters and fire instructors, little information exists on the connection between training fuel source
and chemicals available for exposures during training. Furthermore, no research has examined the effectiveness of different intervention approaches such as alternative training fuels or novel training props to reduce risk while providing high quality training.

**Methods:**
Using a multi-scale engineering approach, building off previous DHS FP&S studies, we will (a) characterize training fuel risk from controlled bench scale experiments to full scale training fire environments and (b) qualitatively assess the value of training fire environments in the context of fire dynamics lesson against the risks generated by these fuels. The ability to link across scale could provide a screening method for currently suggested control measures as well as those proposed in the future.

**Anticipated Outcomes**
We anticipate finding a wide range of products of combustion from various training fuel choices and that intervention fuels may lower this risk while still providing high quality training environment. We will also develop an actionable risk benefit framework that can be implemented by the fire service and included in NFPA 1403. Our results will allow the fire service to make informed decisions about training fuel selection to balance contamination reduction and preparation for fire ground activities.

To date, we have assembled a Study Advisory Panel of 19 members of the fire service and fire training organizations (including NFPA 1403 and IAFF representation) who have provided guidance to the study regarding common training fuels and training structures used throughout the United States. We have begun bench scale testing of many of the common training fuels used by these organizations as well as alternative fuels that have been recommended as replacements for traditional engineered wood products. This spring and summer, we will collect data from a series of live-fire scenarios using a common fire behavior prop (sometimes referred to as a ‘Phase 1’ or ‘Flashover simulator’). In this study, we will measure area air concentrations of the same compounds identified in Fent et al (2019) as well as some additional compounds of interest. Five different fuels ranging from pallets & straw to traditional OSB to wood fiber panels will be studied with five replicates of each fuel package. With these two series of experiments, we will be able to carefully study the impact of fuel selection on the fire environment in a controlled and repeatable manner.

We believe that once this data has been collected and analyzed, it will be of significant benefit to the NFPA technical committee and the fire service at large to make an informed choice on the relative risks of fuels available for live-fire training in the US.
John Morris  
3M  
4320 Goldmine Road  
Monroe, NC 28110

Please find the following additional information supporting 3M’s requesting that the NFPA Standards Council overturn the ballot results of TIA Log 1545 and not issue the TIA 1545.

It is 3Ms position that this TIA seeks to REDUCE a performance requirement for Self-Contained Breathing Apparatus which has been established and met for the past 34 years for SCBA certified to NFPA Standards. The TIA would lower the performance of respirators certified to the NFPA 1986 Standard from -32°C (-25°F) to a manufacture CHOSEN temperature. From the TIA “minimum operating temperature specified by the manufacturer shall be −18°C (0°F) or colder”. This is a significant temperature change that the user would be expected to “look up in their instructions” and would vary among approved respirators. “The low temperature limit would be required to be stated in the User Instructions for each product so that a user would know the limitations for the product.” In my over 25 years’ experience with the design and certification of NFPA products, the trend in the Technical Committees has always been to raise the bar to encourage manufactures to improve their products’ performance and user safety. Most manufactures have risen to the challenge and met the demanding requirements based on real world environments.


2. Flexible and Rigid Facepiece design and performance requirements have always been considered and accommodated for this standard.

3. Implied Design limitations of a flexible mask are NOT preventing certification of products to this standard.
1. NFPA 1981 was the basis that NFPA 1986 was modeled after and should correlate to. From the attached “MINUTES OF THE MEETING TECHNICAL COMMITTEE ON TACTICAL AND TECHNICAL OPERATIONS RESPIRATORY PROTECTION EQUIPMENT 10-11 SEPTEMBER 2013”

AGENDA ITEM 6; DISCUSSION OF EXISTING DOCUMENTS
Chairman Montgomery asked Christina Baxter to review the work that had previously been done to develop a new non-firefighting SCBA standard.

The TC reviewed and revised Chapter 1 and related Annex items of NFPA 1981, 2013 Edition as the first chapter of the new SCBA standard.

The TC developed a “wish list” of desired design requirements that should be considered in the development of the new SCBA standard.

AGENDA ITEM 6; DISCUSSION OF EXISTING DOCUMENTS
Chairman Montgomery asked Christina Baxter to review the work that had previously been done to develop a new non-firefighting SCBA standard.

The TC reviewed and revised Chapter 1 and related Annex items of NFPA 1981, 2013 Edition as the first chapter of the new SCBA standard.

The TC developed a “wish list” of desired design requirements that should be considered in the development of the new SCBA standard.

Please note how the Scope from NFPA 1986 is almost identical to the Scope from NFPA 1981.

From the Scope of NFPA 1986, 2017 edition
1.1.1* This standard shall specify the minimum requirements for the design, performance, testing, and certification of (1) new compressed breathing air open-circuit self-contained breathing apparatus (SCBA) and compressed breathing air combination open-circuit self-contained breathing apparatus and supplied air respirators (SCBA/SARs); and (2) replacement parts, components, and accessories for those respirators.

From the Scope of NFPA 1981, 2019 edition
1.1.1* This standard shall specify the minimum requirements for the design, performance, testing, and certification of new compressed breathing air open-circuit self-contained breathing apparatus (SCBA) and compressed breathing air combination open-circuit self-contained breathing apparatus and supplied air respirators (SCBA/SARs) and for the replacement parts, components, and accessories for these respirators.

2. Avon stated in the TIA - “When high flow rates such as NFPA testing rates of 103 lpm are combined with extremely cold temperatures, these airflow management restrictions can cause a slightly lower performance of air delivery. When NFPA 1986:2017 was introduced, the extent of this phenomena may not have been fully understood or appreciated.”
3. Flexible and Rigid Facepiece design and performance requirements have been taken into consideration from the conception of this standard. The performance requirements are not something that were overlooked nor misunderstood. Judge Morgan (3M Scott) and Clint Mayhue (Avon) were members of the Facepiece Design Task Group. From the attached “MINUTES OF THE MEETING TECHNICAL COMMITTEE ON TACTICAL AND TECHNICAL OPERATIONS RESPIRATORY PROTECTION EQUIPMENT 10-11 SEPTEMBER 2013”

AGENDA ITEM 7; ESTABLISHMENT OF TASK GROUPS


Committee members volunteered to be on the Task Groups. The Task Group members are:

<table>
<thead>
<tr>
<th>Facepiece Design</th>
<th>Performance</th>
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<tbody>
<tr>
<td>Beth Lancaster (Chairperson)</td>
<td>Steve Sanders (Chairperson)</td>
</tr>
<tr>
<td>Jon Szalajda</td>
<td>Steve Weinstein</td>
</tr>
<tr>
<td>Bob Sell</td>
<td>Jon Szalajda</td>
</tr>
<tr>
<td><strong>Judge Morgan</strong></td>
<td>David Caretti</td>
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<tr>
<td>Brian Clifford</td>
<td>Beth Lancaster</td>
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<tr>
<td>Caomhin Connell</td>
<td>Marco Tekelenburg</td>
</tr>
<tr>
<td><strong>Clint Mayhue</strong></td>
<td>Clint Mayhue</td>
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<tr>
<td>Marco Tekelenburg</td>
<td>Steve Corrado</td>
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<tr>
<td></td>
<td>Dan Barker</td>
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<td><strong>Judge Morgan</strong></td>
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<tr>
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<td>Lana Nieves</td>
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<td>Gregory Sackman</td>
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<td></td>
<td>Bob Sell</td>
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<td></td>
<td>Chad Morey</td>
</tr>
</tbody>
</table>

3M manufactures BOTH flexible and rigid visor masks which have passed internal and/or external testing of the NFPA cold test airflow requirements. Both mask styles maintained a facepiece pressure of 0.0 to 3 ½ inches of water column while breathing at a rate of 103 lpm at -25F. We have found that cold temperature flow performance is related to regulator performance and NOT the flexibility of the facepiece. Utilizing feedback from OUR end users seeking better field of view and impact protection during riots, we chose to seek initial certification for our NFPA 1986 SCBA with our rigid visor mask.

4. Avon “The user community wishes to utilize tactical mask styles and is still in heavy need of NFPA 1986 approved SCBA but still there is nothing approved to the standard now three years after its original release.”

The reasons for the delay in certification are not related to the mask style and minimum performance requirements of the NFPA 1986 standard but rather the limited availability and schedules of labs qualified to test Self Contained Breathing Apparatus. Intertek is the only lab that SEI has approved for NFPA testing of SCBAs. NIOSH has one lab to perform the required respirator testing. And most importantly Edgewood is the only lab approved by NIOSH capable of the required live agent testing. This compounded with the following:

a. NIOSH Testing prioritization. Including prioritization of COVID-19-related respirator testing.

b. NFPA Testing prioritization (NFPA 1981 Ed 2018 products took priority). Six manufacturers submitted products which are tested at the same labs (Intertek, NIOSH and Edgewood).
Four manufacturers received certification.


c. NFPA Edgewood CBRN testing lab shutdown from March through September 2020 due to Pandemic.

d. Edgewood Lab equipment failure January 2021 with no estimated repair timeline. 3M passed the NFPA testing in question over a year ago but is waiting on Edgewood to resume testing for the final part for certification to NFPA 1986.

![Test Report](image-url)

**SECTION 1**

**TEST PLAN SUMMARY**

The following tests were identified by Safety Equipment Institute as applicable under the scope of this report. These tests were conducted to determine compliance with the minimum test requirements of NFPA 1986, Standard on Respiratory Protection Equipment for Tactical and Technical Operations, 2017 edition. Details of instrument calibration are maintained in laboratory records.

<table>
<thead>
<tr>
<th>SECTION</th>
<th>TEST</th>
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<tbody>
<tr>
<td>GENERAL</td>
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<td>5.1 &amp; 5.2</td>
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<td>6</td>
<td>Design Requirements</td>
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<td>8.21</td>
<td>Supplementary Voice Communications System Performance</td>
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<td>8.2</td>
<td>Environmental Temperature</td>
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<td>8.23**</td>
<td>FBSS Cold Temperature Performance</td>
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<td>CATEGORY B</td>
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<td>8.18</td>
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<td>8.20</td>
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<tr>
<td>8.16</td>
<td>Cylinder Refill Breathing Performance</td>
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<td>8.17</td>
<td>BIC LAC System PFD Rate Performance</td>
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<td>8.23**</td>
<td>FBSS Cold Temperature Performance</td>
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<tr>
<td>8.4</td>
<td>Accelerated Corrosion</td>
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*Tested by Inspec International located in Greater Manchester, United Kingdom. Inspec Test Report 1.10.06.02

**Tested together
This TIA seeks to make an argument for or against which style masks a user should select for tactical applications. 3M testing has shown both mask styles can maintain a facepiece pressure of 0.0 to 3 ½ inches of water column while breathing at a rate of 103 lpm at -25F and meet the requirements of NFPA 1986. 3M testing and user feedback has shown that sighting a weapon is possible and efficient with both style masks.

As stated earlier, utilizing feedback from OUR end users, we chose to seek initial certification for our rigid visor mask. Our rigid visor masks allow for better field of view and impact protection that a flexible mask would not. The rigid visor mask will also offer advanced technologies such as hands-free Thermal Imaging and Communications systems not available for flexible masks. Rigid visor masks are already widely used by this user group. The link below shows other manufacturer’s rigid visor mask used by law enforcement:
Thank you

John Morris

3M Science. Applied to Life.”
Personal Safety Division – SCBA/Fire & Fall Protection
4320 Goldmine Road | Monroe, NC, 28110 | USA
MINUTES OF THE MEETING

TECHNICAL COMMITTEE ON TACTICAL AND TECHNICAL OPERATIONS RESPIRATORY PROTECTION EQUIPMENT

10-11 SEPTEMBER 2013

BALTIMORE, MD

AGENDA ITEMS 1-2; SELF-INTRODUCTION OF MEMBERS AND GUESTS, STAFF LIAISON REPORT

Chairman Montgomery called the Committee to order at 09:30 on 10 September 2013. Chairman Montgomery welcomed Committee members and guests and asked them to introduce themselves. David Trebisacci provided the NFPA Staff Liaison report and asked attendees to sign in on the appropriate Member or Guest sign-in sheet. He reviewed the following: the NFPA Fire and Emergency Services Protective Clothing & Equipment Project; an overview of the NFPA document revision process; a demonstration of the new Public Input online process, using NFPA 1991 as an example; the TC composition and balance; the Document Information pages on the NFPA website; Enforcer funding; the Fire Protection Research Foundation; and legal issues and restrictions with which the TC must comply.

Members Present:

Brian Montgomery, Chairman          U.S. Department of Justice
Steven H. Weinstein, Secretary      Honeywell Safety Products
David Trebisacci, Staff Liaison     NFPA

Craig Adams                        The InterAgency Board
Daniel Barker                     U.S. Department of Defense
David Caretti                     U.S. Department of Defense
Brian Clifford                   U.S. Federal Bureau of Investigation
Caoimhin Connell                The InterAgency Board
Denice Durrant                   Underwriters Laboratories Inc.
David Hodson                    Draeger Safety UK Ltd
Beth Lancaster                   U.S. Department of Defense
Clint Mayhue                     Avon Protection Systems
Lana Nieves                      U.S. Department of Labor
Jerry Phifer                     Scott Safety
Casandra Robinson               National Institute of Standards & Technology
Gregory Sackman                The InterAgency Board
Stephen Sanders               Safety Equipment Institute (SEI)
John Scrivani                   U.S. Department of Defense
Robert Sell                     Draeger Safety Inc.
Natalia Stakhiv               U.S. Department of Labor
Jonathan Szalajda             NIOSH
Marco Tekelenburg             Mine Safety Appliance Company
Mark Williamson               Avon Protection Systems
The following guests were present:

Christina Baxter    DOD/CTTSO/TSWG
CWO3 Tom Dever    MARCOR SYSCOM
Beverly Gulledge    Scott Safety
Jamesia Hobbs    MARCOR SYSCOM
Donald Holman    MCSC
Judge Morgan III    Scott Safety
James Wilcox     Avon Protection
Christopher Wrenn    Gentex

AGENDA ITEM 3; CHAIRMAN'S REMARKS

Chairman Montgomery spoke about his vision of the purpose and scope of the TC.

AGENDA ITEM 4; PROPOSED SCOPE AND TC NAME

The TC proposed revisions to the preliminary statement of scope for the Committee. A new name for the TC was also proposed. The scope and TC name change will be submitted to the NFPA Standards Council for approval. [Note: At the October 22-23, 2013 Standards Council meeting, these requests were approved].

MOTION BY CRAIG ADAMS; SECOND BY JOHN SCRIVANI
To change the name of the Technical Committee from the existing “Technical Committee on Non-Structural SCBA” to “Technical Committee on Tactical and Technical Operations Respiratory Protection Equipment”

MOTION CARRIED.

AGENDA ITEM 5; NIOSH UPDATE

Jon Szalajda spoke to the TC on what NIOSH would like to see in the standards for which the TC is responsible, and on NIOSH’s role in interfacing with the TC. He spoke about the codification of CBRN requirements and the possibility of developing a standard or standards for combination SCBAs (SCBA/APR or SCBA/PAPR). He informed the TC about the public meetings scheduled for September 17-19 at NIOSH. He also stated that there will be an RFI for PAPR issued by the end of 2013, leading toward a notice of proposed rulemaking in 2014.

AGENDA ITEM 6; DISCUSSION OF EXISTING DOCUMENTS

Chairman Montgomery asked Christina Baxter to review the work that had previously been done to develop a new non-firefighting SCBA standard.

The TC reviewed and revised Chapter 1 and related Annex items of NFPA 1981, 2013 Edition as the first chapter of the new SCBA standard.

The TC developed a “wish list” of desired design requirements that should be considered in the development of the new SCBA standard.
AGENDA ITEM 7; ESTABLISHMENT OF TASK GROUPS


Committee members volunteered to be on the Task Groups. The Task Group members are:

**Facepiece Design**
Beth Lancaster (Chairperson)
Jon Szalajda
Bob Sell
Judge Morgan
Brian Clifford
Caoimhin Connell
Clint Mayhue
Marco Tekelenburg

**Non-Facepiece Design**
Marco Tekelenburg (Chairperson)
Steve Weinstein
David Hodson
Mark Williamson
Craig Adams
Jerry Phifer
Brian Clifford
Caoimhin Connell
Natalia Stakhiv

**Performance**
Steve Sanders (Chairperson)
Steve Weinstein
Jon Szalajda
David Caretti
Beth Lancaster
Marco Tekelenburg
Clint Mayhue
Steve Corrado
Dan Barker
Judge Morgan
Lana Nieves
Gregory Sackman
Bob Sell
Chad Morey

The Facepiece Design and Non-Facepiece Design Task Groups met during the TC meeting. The Task Group Chairpersons reported the results of those meetings to the TC.
AGENDA ITEM 8; NEW BUSINESS & NEXT MEETING

Chairman Montgomery discussed with the TC the 2014 meeting schedule necessary to insert the new SCBA standard into the Fall 2016 standard cycle (the standard would carry a 2017 edition date). The preliminary 2014 meeting dates agreed upon by the TC are as follows:

January 14-16 (Orlando, FL was discussed as a possible meeting location)
April 1-3
July 14-16

AGENDA ITEM 9; ADJOURNMENT

MOTION BY CLINT MAYHUE; SECOND BY DAVID CARETTI
To adjourn.

MOTION CARRIED.

Chairman Montgomery adjourned the meeting at 12:00 on 11 September 2013.

Respectfully submitted,

Steven H. Weinstein, Secretary
Technical Committee on Non-Structural Fire Fighting SCBA