MEMORANDUM

DATE: September 10, 2014

TO: Principal and Alternate Members of the Technical Committee on Aircraft Fuel Servicing (AIF-AAA)

FROM: Barry Chase, NFPA Staff Liaison
Office: (617) 984-7259 Email: BChase@nfpa.org

SUBJECT: AGENDA – NFPA 407 First Draft Meeting (Annual 2016) September 24-26, 2014, Chicago, IL

1. Call to Order – September 24, 2014, 8:00am CDT
2. Introductions and Attendance
3. Chair’s Comments
4. Review Agenda
5. NFPA Staff Liaison Presentation and Review of Key Dates in Current Cycle
6. Approval of Previous Meeting Minutes (407 ROC Meeting – September 14, 2010 and Pre-First Draft Meeting – March 21, 2014)
7. NFPA 407 First Draft Report
   a. Address Public Input and Generate First Revisions
   b. Document Reorganization (J. Souza)
8. Other Business
9. Next Meeting

Please submit requests for additional agenda items to the chair at least seven days prior to the meeting, and notify the chair and staff liaison as soon as possible if you plan to introduce any committee comments at the meeting.

All NFPA Technical Committee meetings are open to the public. Please contact me for information on attending a meeting as a guest. Read NFPA’s Regulations Governing Committee Projects (Section 3.3.3.3) for further information.

Additional Meeting Information:
See the Meeting Notice on the Document Information Page (www.nfpa.org/407next) for meeting location details. If you have any questions, please feel free to contact Elena Carroll, Project Administrator at 617-984-7952 or by email ecarroll@nfpa.org.

C. Standards Administration
COMMITTEE ROSTER
(AIF-AAA)
### Aircraft Fuel Servicing

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Address</th>
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<tbody>
<tr>
<td>Fred A. Cnota</td>
<td>Chair</td>
<td>Chicago Fire Department, Chicago O'Hare Airport, 6934 West Highland Avenue, Chicago, IL 60631-1735</td>
<td>E</td>
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<tr>
<td>John H. Bagnall</td>
<td>Principal</td>
<td>Burns &amp; McDonnell Engineering Company, PO Box 419173, Kansas City, MO 64141</td>
<td>SE</td>
<td>1/5/2004</td>
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<tr>
<td>Mark Bourdeau</td>
<td>Principal</td>
<td>United Airlines Inc., 1200 East Algonquin Road, Elk Grove Township, IL 60007</td>
<td>C</td>
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<tr>
<td>Paul E. Calderwood</td>
<td>Principal</td>
<td>City of Everett Fire Department, 10311 Inwood Drive, Woburn, MA 01801</td>
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<tr>
<td>Roy Creley</td>
<td>Principal</td>
<td>Lakes Region Environmental Inc., PO Box 1236, Belmont, NH 03220</td>
<td>M</td>
<td>10/27/2009</td>
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<td>Christopher L. Dukes</td>
<td>Principal</td>
<td>Titan Aviation, 5-197, Mina Al Arab, Ras Al Khaimah, 33638 United Arab Emirates</td>
<td>M</td>
<td>7/22/1999</td>
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<td>Jeremy Souza</td>
<td>Secretary</td>
<td>Rhode Island Airport Corporation, T. F. Green Airport Fire-Rescue, 2000 Post road, Warwick, RI 02886</td>
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<td>Terry L. Bosserman</td>
<td>Principal</td>
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<td>Michael D. Butler</td>
<td>Principal</td>
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<td>Hayde Carlton</td>
<td>Principal</td>
<td>American Airlines, 3900 North Mingo Road, Tulsa, OK 74116-5000</td>
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<td>John J. Demyan</td>
<td>Principal</td>
<td>Lehigh-Northampton Airport Authority, 1343 North Tacoma Street, Allentown, PA 18109</td>
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<td>Dan Frank</td>
<td>Principal</td>
<td>Argus Consulting, Inc., 1300 NW Jefferson Court, Suite 100, Blue Springs, MO 64015</td>
<td>SE</td>
<td>7/29/2013</td>
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<tr>
<td>Howard M. Gammon</td>
<td>Principal</td>
<td>Gammon Technical Products Inc., 2300 Highway 34, Manasquan, NJ 08736-0400</td>
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<td>1/1/1986</td>
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</tbody>
</table>
Nathan R. Gerlich  
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PO Box 36611, HQ-7FM  
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**Principal**  
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July 29, 2013  

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Oct 27, 2009  

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Alternate: Hal Douglas White  
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**Principal**  
Skytanking USA Inc.  
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Oct 1, 1999  

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**Principal**  
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Boston-Logan International Airport  
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East Boston, MA 02128-2905  
Jul 29, 2013  

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**Principal**  
Aviation Fire Safety Consultants Inc.  
5939 North West Circle Avenue  
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Mar 7, 2013  

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**Principal**  
Garsite Aviation Refueling Equipment  
539 South 10th Street  
Kansas City, KS 66105  
Jan 3, 2011  

Steve Thickstun  
**Principal**  
Advanced Fuel Systems  
841 Alton Avenue  
Columbus, OH 43219  
Oct 29, 2012  

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**Principal**  
Dellem Associates Inc.  
16115 East Course Drive  
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Jul 29, 2013  

Larry Beasley  
**Principal**  
Robert and Company  
229 Peachtree Street, NE  
Atlanta, GA 30303  
Alternate: Michael Kluttz  
Jul 26, 2007  

Barry D. Chase  09/08/2014  
AIF-AAA
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<td>Fred A. Cnota</td>
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<td>Charles A. Davis</td>
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<td>Barry D. Chase</td>
<td>Staff Liaison</td>
<td>National Fire Protection Association</td>
<td>Charles Seagrave</td>
<td>7/29/2010</td>
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MEETING MINUTES

(Sept. 14, 2010 ROC)
1. Meeting called to order by Fred Cnota at 12:10pm EST
2. Roll was called.
   Attendees (P = Principal, A = Alternate, G = Guest):
   Fred Cnota, P (Chair)
   Jeremy Souza, P (Secretary)
   Terry Bosserman, P
   Paul Calderwood, P
   Roy Creley, P
   John Demyan, P
   Michael Kluttz, P
   Michael Loveridge, P
   Michael Motschman, P
   Aldo Nuzzolese, P
   Cristino Colon, A (Alt. to Fred Cnota)
   Carl Crosley, A (Voting for Haydee Carlton)
   Rick Hutson (ASA), G
   Jonathan Levin, NFPA Staff
   Barry Chase, NFPA Staff

3. Jeremy Souza was elected Secretary of the Committee.
4. Meeting minutes accepted from previous meeting
5. Public comments were reviewed and addressed
6. The Task Group on Bonding Procedure reported and was dissolved with no committee action.
7. The Task Group on Tunnel Use reported and the committee addressed the recommended actions.
8. Meeting opened to members for additional Committee Comments

   A Task Group was created to research the requirements for alternative-fuel fueling vehicles and electronic components on fuel vehicles and to determine whether the material may be justifiably added at the Comment stage. The Task Group consisted of:
   • Aldo Nuzzolese, Port Authority of New York and New Jersey (chair)
   • Terry Bosserman, Bosserman Aviation Equipment, Inc
• Fred Cnota, Chicago Fire Department
• John Demyan, Lehigh-Northampton Airport Authority
• Chris Colon, Chicago Fire Department
• Chris Dukes, Garsite, Inc (potential)

Alternative Fueled Vehicles Task Group will report back to the full committee by October 15, 2010 at the latest with the results of their research.

9. Next meeting tentatively scheduled for Wednesday, October 20th, to hear the report of the Task Group on Alternative-Fuel Vehicles. Should the meeting not be needed, an email will be sent to cancel prior to the meeting.
10. The meeting was adjourned by Fred Cnota at 2:32pm.

Respectfully submitted,

Jeremy Souza
MEETING MINUTES
(March 31, 2014 Pre-FD)
NFPA 407 Pre- First Draft Meeting Minutes

Technical Committee on Aircraft Fuel Servicing

Friday, March 31, 2014

Conference Call / Adobe Connect web meeting

1. The meeting was called to order by Fred Cnota at 1:06 PM Eastern Time

2. The roll was called showing 18 total attendees:

   Fred Cnota P (Chair)
   Jeremy Souza P (Secretary)
   John Bagnall P
   Terry Bosserman P
   Roy Creley P
   Charles Davis P
   Dan Frank P
   Thomas Gambino P
   Michael Kluttz P
   Michael Loveridge P
   Michael Motschman P
   Michael Nightingale P
   Aldo Nuzzolese P
   Dana Potter P

   Mike Butler (URS Corporation) (guest)

   Barry Chase (NFPA Staff Liaison)
   Audrey Goldstein (NFPA staff)
   Jacqueline Wilmot (NFPA staff)

3. The meeting agenda was reviewed by Fred Cnota.

4. Staff Liaison Barry Chase presented NFPA updates to the standards revision process

5. Jeremy Souza presented a proposal for a complete rewrite/reorganization of NFPA 407 (attached in the agenda).

   At the request of Fred Cnota, the committee, as a whole, was tasked to read and comment on the revised NFPA 407 and to have the comments in by June 1, 2014 to Jeremy Souza.

6. Electronic cigarette requirements will be added in as a public comment from the originator.
7. Spark arrestors on fuel injected gasoline engine requirements will be added in as a public comment from the originator.

8. Labeling on tanker cab and fuel facilities will be added in as a public comment from the originator.

9. API 1529 (now known as EI 1529) changes will be addressed through public comments or at the First Draft meeting.

10. Other business: none.

11. Prospective date for the First Draft Meeting will be September 24, 25, and 26, 2014 in the Chicago area.

12. The meeting was adjourned at 2:00PM Eastern time.

Respectfully submitted;

Jeremy Souza, Secretary
Public Input
# Chapter 2   Referenced Publications

## 2.1   General.
The documents or portions thereof listed in this chapter are referenced within this standard and shall be considered part of the requirements of this document.

## 2.2   NFPA Publications.
National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471.

## 2.3   Other Publications.

### 2.3.1   API EI Publications.

### 2.3.2   ASME Publications.
ASME *International, 3 Park Avenue, New York NY 10016-5990*.

### 2.3.3   ASTM Publications.
ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959.

### 2.3.4   AWS Publications.
American Welding Society, 550 N.W. LeJeune Road 8669 NW 36 Street, Miami, FL 33166-6672.

### 2.3.5   UL Publications.
Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, IL 60062-2096.

### 2.3.6   U.S. Government Publications.

### 2.3.7   Other Publications.

## 2.4   References for Extracts in Mandatory Sections.
Statement of Problem and Substantiation for Public Input

Updated to current editions and change in address for American Welding Society.

Related Public Inputs for This Document

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<td>Public Input No. 33-NFPA 407-2014 [Chapter C]</td>
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Submitter Information Verification

Submitter Full Name: Aaron Adamczyk
Organization: [ Not Specified ]
Street Address: 
City: 
State: 
Zip: 
Submittal Date: Tue Jun 10 23:52:52 EDT 2014
2.3.3 ASTM Publications.
ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959.

Statement of Problem and Substantiation for Public Input

Update the year date for standard(s)

Submitter Information Verification

Submitter Full Name: Steve Mawn
Organization: ASTM International
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jul 07 10:40:00 EDT 2014
Additional Proposed Changes

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Statement of Problem and Substantiation for Public Input

NFPA 407 lacks mention of testing fuel for fuel contamination. Minimizing the contaminants in aviation fuel reduces the probability of filter plugging and other operational flight safety issues.

Submitter Information Verification

Submitter Full Name: Christopher Trumble
Organization: US Army Aviation & Missile Command
Street Address:
City:
State:
Zip:
Submittal Date: Thu May 02 13:12:17 EDT 2013
2.3.3ASTM Publications.
ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959.

Additional Proposed Changes

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Statement of Problem and Substantiation for Public Input

NFPA 407 lacks mention of fuel sampling. Fuel sampling is an important phase of aircraft refueling and one which procedures are needed to ensure the integrity of the sample and mitigate other operational flight/refueling safety issues.

Submitter Information Verification

Submitter Full Name: Christopher Trumble
Organization: US Army Aviation & Missile Command
Street Address:
City:
State:
Zip:
Submittal Date: Thu May 02 13:15:29 EDT 2013
4.1.3 No Smoking Signs.
Entrances to fueling areas shall be posted with an approved "no smoking" signs.

Statement of Problem and Substantiation for Public Input

Similar to requirements in NFPA 1, mandatory signage should be approved by the authority having jurisdiction to ensure that it is of sufficient size and does not conflict with background area, etc. so as to be readily seen.

Submitter Information Verification

Submitter Full Name: Bill Galloway
Organization: Southern Regional Fire Code De
Street Address: 
City: 
State: 
Zip: 
Submittal Date: Thu Apr 17 16:47:27 EDT 2014
4.1.8 Pressure Fuel Servicing System Controls.
The system shall be designed to minimize surge pressure. The overshoot shall not exceed 5 percent of one minute’s actual flow rate from the time the deadman is released until the flow stops completely. The control valve shall be located and designed so that it will not be rendered inoperative by a surface accident, power failure, or spill. The control valve shall be fail-safe by closing completely in the event of control power loss.

Statement of Problem and Substantiation for Public Input

The current requirement does not give a time for the given rate. A strict reading could result in enforcement of a gallon-per-hour rate, allowing a very large overshoot. Specifying a one minute time limit for the given rate will allow for consistent enforcement.

Submitter Information Verification

Submitter Full Name: Jeremy Souza
Organization: Rhode Island Airport Corporation
Street Address: 
City: 
State: 
Zip: 
Submittal Date: Sun Mar 23 14:30:42 EDT 2014
Public Input No. 17-NFPA 407-2014 [Section No. 4.4.5.7]

4.4.5.7
Each emergency fuel shutoff station shall be placarded EMERGENCY FUEL SHUTOFF in letters at least 50 mm (2 in.) high. The method of operation shall be indicated by an arrow or by the word PUSH or PULL, as appropriate. Any action necessary to gain access to the shutoff device (e.g., BREAK GLASS) shall be shown clearly. Lettering shall be of a color contrasting sharply with the placard background for visibility. Placards shall be weather resistant, shall be located at least 2.1 m (7 ft) above grade, and shall be positioned so that they can be seen readily from a distance of at least 715.6 m (250 feet). Valves used to shut off a hydrant for maintenance purposes shall not have placards that could create confusion in an emergency.

Statement of Problem and Substantiation for Public Input

4.4.10.3 requires Emergency Fuel Shutoff stations to be located at least 50 feet from terminal buildings, hangars, service buildings, or enclosed concourses. Most Emergency Fuel Shutoff stations are mounted on the building adjacent to the fueling cabinet or hydrant. If the fueling equipment is at least 50 feet from the Emergency Fuel Shutoff, the sign should be visible from the fueling equipment.

Submitter Information Verification

Submitter Full Name: Jeremy Souza
Organization: Rhode Island Airport Corporation
Street Address: 
City: 
State: 
Zip: 
Submittal Date: Sun Mar 23 13:44:31 EDT 2014
4.4.5.7
Each emergency fuel shutoff station shall be placarded EMERGENCY FUEL SHUTOFF in letters at least 50 mm (2 in.) high. The method of operation shall be indicated by an arrow or by the word PUSH or PULL, as appropriate. Any action necessary to gain access to the shutoff device (e.g., BREAK GLASS) shall be shown clearly. Lettering shall be of a color contrasting sharply with the placard background for visibility. Placards shall be weather resistant, shall be located at least 2.1 m (7 ft) above grade measured to the bottom of the placard, and shall be positioned so that they can be seen readily from a distance of at least 7.6 m (25 ft). Valves used to shut off a hydrant for maintenance purposes shall not have placards that could create confusion in an emergency.

Statement of Problem and Substantiation for Public Input

As currently written, the 7 foot height is difficult to enforce, as it does not specify whether the distance is to the bottom of the sign, bottom of the text, middle of the sign, top of the text, or top of the sign. The requirement should specify where the measurement is to.

Submitter Information Verification

Submitter Full Name: Jeremy Souza
Organization: Rhode Island Airport Corporation
Street Address: 
City: 
State: 
Zip: 
Submittal Date: Sun Mar 23 14:38:47 EDT 2014
Each pump shall have an automatic safety shutdown feature which automatically shuts down the pump operation if there is a low suction pressure, engine over speed, high coolant temperature, and/or low lube oil pressure condition.

Statement of Problem and Substantiation for Public Input

The ability for a pump to shut itself down automatically when a potentially hazardous situation is developing is important to safe fueling operations. It is recommended this situation be recognized and included within NFPA 407.

Submitter Information Verification

Submitter Full Name: Christopher Trumble
Organization: US Army Aviation & Missile Command
Street Address: 
City: 
State: 
Zip: 
Submittal Date: Thu May 02 11:19:09 EDT 2013
4.5.3.6 Each pump and pump engine shall have a method to positively lock out the equipment for maintenance and have a documented lockout procedure which conforms to the requirements of OSHA 29 CFR 1910.147.

Additional Proposed Changes

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Statement of Problem and Substantiation for Public Input

Pumps and engines have moving parts that could pose a hazard to personnel. The ability to lockout the equipment for maintenance and repair purposes is important for safe fueling operations and a regulatory requirement of the Federal Government. It is recommended this situation be recognized and included within NFPA 407.

Submitter Information Verification

Submitter Full Name: Christopher Trumble
Organization: US Army Aviation & Missile Command
Street Address: City: State: Zip:
Submittal Date: Thu May 02 11:22:22 EDT 2013
4.5.3.7 Each pump and pump engine shall have appropriate machine guarding in place to protect personnel which conforms to the requirements of OSHA 29 CFR 1910, Subpart O.

Additional Proposed Changes

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Statement of Problem and Substantiation for Public Input

Pumps and engines have moving parts that could pose a hazard to personnel. The ability to protect personnel from machine hazards such as pinch points, and rotating equipment is important for safe fueling operations and a regulatory requirement of the Federal Government. It is recommended this situation be recognized and included within NFPA 407.

Submitter Information Verification

Submitter Full Name: Christopher Trumble
Organization: US Army Aviation & Missile Command
Street Address:
City:
State:
Zip:
Submittal Date: Thu May 02 13:05:56 EDT 2013
Public Input No. 5-NFPA 407-2013 [ New Section after 4.5.3.3 ]

4.5.3.4 At each pump engine shall be placarded "DANGER - HOT SURFACES" in a conspicuous location.

Additional Proposed Changes

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Statement of Problem and Substantiation for Public Input

The operation of pumps will cause engines to become hot and could pose a thermal burn hazard to a person. It is recommended this situation be recognized and included within NFPA 407.

Submitter Information Verification

Submitter Full Name: Christopher Trumble
Organization: US Army Aviation & Missile Command
Street Address:
City:
State:
Zip:
Submittal Date: Thu May 02 13:08:44 EDT 2013
4.5.3.5 Each pump and pump engine shall be placarded "DANGER - MOVING PARTS" in a conspicuous location.

Additional Proposed Changes

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Statement of Problem and Substantiation for Public Input

Pumps and engines have moving parts that could pose a hazard to personnel. It is recommended this situation be recognized and included within NFPA 407.

Submitter Information Verification

Submitter Full Name: Christopher Trumble
Organization: US Army Aviation & Missile Command
Street Address: 
City: 
State: 
Zip: 
Submittal Date: Thu May 02 13:10:28 EDT 2013
5.2.6 The airport fire crew shall, if established, or the local fire department serving the airport shall be notified if a spill covers over 3 m (10 ft) in any direction or is over 5 m² (50 ft²) in area, continues to flow, or is otherwise a hazard to persons or property. The spill shall be investigated to determine the cause, to determine whether emergency procedures were properly carried out, and to determine the necessary corrective measures.

Statement of Problem and Substantiation for Public Input

The term airport fire crew seems to imply an airport based fire department or fire crew has been established and is available. There are many smaller municipal airports and small private airports and landing strips where no official airport fire crew has been established or is present. In those cases it should be required that the local fire department serving the airport area shall be notified.

Submitter Information Verification

Submitter Full Name: Bill Galloway
Organization: Southern Regional Fire Code De
Street Address:
City:
State:
Zip:
Submittal Date: Thu Apr 17 16:48:12 EDT 2014
5.4.1
Prior to making any fueling connection to the aircraft, the fueling equipment shall be bonded to the aircraft by use of a cable, thus providing a conductive path to equalize the potential between the fueling equipment and the aircraft. The bond shall be maintained until fueling connections have been removed, thus allowing separated charges that could be generated during the fueling operation to reunite. Grounding of fueling equipment during aircraft fueling shall not be permitted.

Additional Proposed Changes

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Statement of Problem and Substantiation for Public Input

After corresponding, via Technical Question on the NFPA website, with Barry Chase on 2/22/2013, I now clearly see the purpose for the sentence; "Grounding...not be permitted" and understand this section is speaking specifically about fueling equipment grounding and not about aircraft grounding. This is to ensure that the fuel vehicle will not be in the aircraft's path to ground. However, if left as is, the current phrase leads to disputes and confusion for the elimination of the earth ground cable for the aircraft while fueling is conducted.

Submitter Information Verification

Submitter Full Name: ALEX GEPHART
Organization: LOCKHEED MARTIN
Street Address:
City:
State:
Zip:
Submittal Date: Thu May 02 13:29:24 EDT 2013
TITLE OF NEW CONTENT
Tail-mounted aircraft auxiliary power units (APU) that direct exhaust away from the fueling operation may be operated during fuel servicing.

Statement of Problem and Substantiation for Public Input

Aircraft auxiliary power units (APUs) are commonly operated at airports where ground-provided electrical and heating/air conditioning are not available. The exhausts of these units are generally directed either upwards from the tail of the aircraft, away from fueling operations. At locations where quick-turnarounds of aircraft take place, APUs are necessary to provide lighting and environmental controls inside the cabin of the aircraft to allow passenger boarding/deboarding and cleaning, which generally take place coincidentally with fueling. Wing-mounted APUs may have combustion air inlets adjacent to the fueling panel or probable fuel spills, and should continue to be prohibited.

Submitter Information Verification

Submitter Full Name: Jeremy Souza
Organization: Rhode Island Airport Corporation
Street Address: 
City: 
State: 
Zip: 
Submittal Date: Sun Mar 23 14:00:24 EDT 2014
Public Input No. 38-NFPA 407-2014 [ New Section after 5.5.1 ]

TITLE OF NEW CONTENT

Type your content here ...

Exception: Agricultural aircraft operated in the restricted category under the Code of Federal Regulations (CFR) Title 14 Part 137 (Agricultural Aircraft Operations) used for agricultural purposes shall be exempt from this requirement as rapid refueling is necessary to maintain the safe functioning of the aircraft, and therefore the safety of the pilot. This refueling will be permitted under the following conditions:

1. An FAA-licensed pilot shall be at the aircraft controls or present during the entire fuel servicing process.
2. Only designated personnel, properly trained in rapid refueling operations, shall operate the equipment. Written procedures shall include the safe handling of the fuel and equipment.
3. Fuel shall be dispensed into an open port from approved deadman-type nozzles, with a flow rate not to exceed 227 L/min (60 gpm), or it shall be dispensed through close-coupled pressure fuel ports.

Statement of Problem and Substantiation for Public Input

The National Agricultural Aviation Association (NAAA) is a national aviation trade association representing more than 1,500 members in 46 states. NAAA supports the interests of small business owners and pilots licensed as commercial applicators that use aircraft to enhance food, fiber and bio-fuel production, protect forestry and control health-threatening pests. Furthermore, through its affiliation with the National Agricultural Aviation Research & Education Foundation (NAAREF), the NAAA contributes to research and educational programs focused on enhancing the efficacy, security and safety of aerial application.

It has been brought to the attention of the NAAA that NFPA Code 407 has been accepted by various governing bodies as their ordinance on airport operations. Chapter 5.5.1 makes the industry accepted practice of “hot fueling” illegal in certain areas. For the following reasons, agricultural operators need to be able to use this method of fueling as required by the operation conducted.

NFPA Code 407 contains language that prohibits fueling of aircraft while the onboard engine is operating. The Association believes that an exemption to this standard is vital to the agricultural aviation industry. This method of re-fueling has been an accepted and long-standing practice in the agricultural aviation industry for many reasons. Re-fueling while the engine is operating is common in the agricultural aviation industry because it allows for best time utilization to complete the job in a narrow treatment window of time, which in our industry, is crucial. Aircraft often land and re-fuel with every load in order to increase safety to the pilot by minimizing the weight of unneeded fuel that they would otherwise carry. The constant shutting down and re-starting of an aircraft engine creates increased wear on engine components, jeopardizing the safety of the pilot due to increased chance of engine failure, as well as creating the need for costly repairs and quick aging of expensive aircraft equipment.

During standard operating procedures, ag aircraft are serviced on the ground every few minutes. If frequent start-stop intervals become a requirement, the aircraft’s engines cannot be shut down without sufficient time to cool off and then must be brought up to operating temperature again after the re-start. The engine stress caused by these “hot start” cycles jeopardizes the safety of the pilot and those in the ground crew. In this situation with the high electrical current draw of starting a turbine engine, the ground crewman is required to connect a power plug at each engine start-up. The outlet for this plug is commonly located in the narrow space between the wing and the rotating propeller. Recurring start-ups will cause the worker to be put in this dangerous situation more frequently.

Pilots, in order to avoid frequent stops and starts, may attempt to carry more chemical and fuel to keep from shutting down as often. This would put increased stress on the aircraft structure, as well as negatively impacting flight performance. Additionally, there is an increased chance that pilots will run out of fuel while attempting to get in “one more load” before shutting down the aircraft.

Finally, leaving the engine running during the loading of chemical products may dissipate the vapor exposure from
the ag chemical making the loading operation safer for ground personnel. In many cases the moving air will also
dissipate the vapors caused by the refueling operation.

The NAAA, in its search of National Transportation Safety Board (NTSB) and Federal Aviation Administration
(FAA) accident and incident databases, has found few instances where an ag aircraft caught fire while re-fueling
with the engine running and those that did occur could have been prevented by proper fueling procedures. In fact,
the potential chance of an engine fire is greatest during start-up, which would occur more frequently while
complying with the existing language of NFPA Code 407. Additionally, many aircraft in the ag aviation industry are
equipped with bottom couplers for the fuel system, nearly eliminating the chance of a spark igniting during the
fueling process.

Again, NAAA is advocating that NFPA amend the fueling standards of NFPA Code 407 since the agricultural
aviation industry operates much differently from those involving passenger and cargo aircraft and relies on
different operational methods to protect pilot safety and that of others involved in the agricultural operation.

Submitter Information Verification

Submitter Full Name: KENNETH DEGG
Organization: NATIONAL AGRICULTURAL AVIATION ASSN
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jul 07 12:01:08 EDT 2014
5.8.1
Entrances to fueling areas shall be posted with approved “no smoking” signs.

Statement of Problem and Substantiation for Public Input

Similar to requirements in NFPA 1, mandatory signage should be approved by the authority having jurisdiction to ensure that it is of sufficient size and does not conflict with background area, etc. so as to be readily seen.

Submitter Information Verification

Submitter Full Name: Bill Galloway
Organization: Southern Regional Fire Code De
Street Address:
City:
State:
Zip:
Submitter Date: Thu Apr 17 16:49:18 EDT 2014
5.9.1 Fuel servicing operations shall be suspended where lightning flashes are in the immediate vicinity, within 8 km (5 mi), of the airport.

Statement of Problem and Substantiation for Public Input

“In the immediate vicinity” is not an enforceable statement. Setting a fixed limit allows airport operators and AHJs to be unambiguous as to the requirement. The 5 mile threshold is from ATA SG 606, Ramp Ops in Severe Weather. Chapter 4, Section 4.1.2(13) recommends stopping all fueling operations when lightning is within 5 miles of the airport, and cease all ramp activities at 3 miles.

Submitter Information Verification

Submitter Full Name: Jeremy Souza
Organization: Rhode Island Airport Corporation
Street Address:
City:
State:
Zip:
Submittal Date: Sun Mar 23 14:12:27 EDT 2014
Public Input No. 21-NFPA 407-2014 [ Section No. 5.11.3 ]

5.11.3
Passengers shall not be permitted to linger about ramp and apron areas outside of the plane but shall proceed directly between the loading gate and the aircraft.

Statement of Problem and Substantiation for Public Input

A strict reading of the paragraph implies that passengers are not allowed onboard the aircraft during fueling operations, as would be found during a flight between airports with an intermediate refueling stop. The added text clarifies the paragraph to preclude passengers outside of the aircraft where loading bridges are not utilized.

Submitter Information Verification

Submitter Full Name: Jeremy Souza
Organization: Rhode Island Airport Corporation
Street Address: 
City: 
State: 
Zip: 
Submittal Date: Sun Mar 23 14:16:28 EDT 2014
5.12.1 Aircraft fuel servicing vehicles and carts shall be positioned so that a clear path of egress for both passengers in the event of an emergency evacuation, and from the aircraft for fuel servicing vehicles shall be maintained.

Statement of Problem and Substantiation for Public Input

Fuel servicing vehicles should be positioned in such a way as to not block aircraft exits, stairways, or emergency slides if deployed during an emergency evacuation of an aircraft during fueling operations.

Submitter Information Verification

Submitter Full Name: Bill Galloway
Organization: Southern Regional Fire Code De
Street Address:
City:
State:
Zip:
Submittal Date: Thu Apr 17 16:50:08 EDT 2014
Public Input No. 18-NFPA 407-2014 [ Section No. 5.13.4 ]

<table>
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| Where the open hose discharge capacity of the aircraft fueling system or equipment is more than 750 L/min (200 gpm), at least one listed wheeled extinguisher having a rating of not less than 80-B:C and a minimum capacity of 55 kg (125 lb) of agent shall be provided at each fuel loading position.

Statement of Problem and Substantiation for Public Input

A strict reading of the original text would suggest that a single wheeled cart extinguisher would be sufficient to protect an entire airport fueling system. The paragraph should explicitly state that wheeled cart extinguishers are required at each loading position.

Submitter Information Verification

<table>
<thead>
<tr>
<th>Submitter Full Name:</th>
<th>Jeremy Souza</th>
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<tr>
<td>Organization:</td>
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5.16.1 Aircraft fueling hose shall be inspected before use each day. The hose shall be extended as it normally would be for fueling and checked for evidence of blistering, any of the following:

(1) blistering

(2) carcass saturation or separation,

(3) exposing of the reinforcement material by cuts, nicks, or abrasions. that expose reinforcement material, and for

(4) slippage, misalignment, or leaks at couplings.

5.16.1.1 If coupling slippage or leaks are found, the cause of the problem shall be determined.

5.16.1.2 Defective hose shall be removed from service.

Statement of Problem and Substantiation for Public Input

The existing paragraph, specifically the statement "cuts, nicks, or or abrasions that expose the reinforcement material" has been interpreted in the field as any cuts or nicks of the hose, or an abrasion that exposes reinforcement requires a hose to be removed from service. Small nicks or cuts that do not impact the safety of the hose have been cause to replace fueling hoses. The section should be clarified as to its intent. Further separation of the requirements to better comply with the Manual of Style.

Submitter Information Verification

Submitter Full Name: Jeremy Souza
Organization: Rhode Island Airport Corporation
Street Address:
City:
State:
Zip:
Submittal Date: Sun Mar 23 14:21:09 EDT 2014
5.16.4.1 If inspection shows that a portion of a hose has been damaged, the damaged portion shall be permitted to be cut off and the undamaged portion recoupled.

Statement of Problem and Substantiation for Public Input

As written, the paragraph requires damaged hose to be recoupled and reused. This should be the option of the fueling equipment operator, not a requirement. Disposal of the fueling hose is often used instead of repair, and will likely result in a longer life of the replaced hose. Suggest changing the "shall" to "shall be permitted to."

Submitter Information Verification

Submitter Full Name: Jeremy Souza
Organizations: Rhode Island Airport Corporation
Street Address:
City:
State:
Zip:
Submittal Date: Sun Mar 23 14:55:48 EDT 2014
Public Input No. 1-NFPA 407-2013 [ New Section after 5.20.1.5 ]

5.20.1.6 To prevent petroleum product contamination these procedures should be followed:

1. Prior to using any petroleum tank or tank vehicle, the interior of the tank should be visually inspected for serviceability. Obvious signs of rust, scale, debris, foreign objects, and/or water should be checked and if found the tank should be removed from service and cleaned.
2. Ensure the product identification nomenclature and grade is clearly labeled on storage tanks, tank compartments, vehicle manhole covers, pipelines, valves, loading racks, control valves and servicing units.
3. Ensure the petroleum being loaded or unloaded is the same as the product in the receiving tank.
4. Ensure a filter/separator is installed in each aviation fuel line between the storage tank and the loading point.
5. Take a fuel sample immediately after the installation of a new filter/separator to determine its effectiveness.
6. Never carry foreign objects in pockets or clothing and keep tools away from tank openings while working around petroleum tanks.
7. Fueling hose should be kept in storage compartments when not in use. Dust caps or plugs are not to be removed from nozzles until they are going to be used.
8. Each day a tank vehicle is used, the aviation fuel in the tanker should be recirculated for 3 to 5 minutes and then a visual fuel sample should be taken to inspect for color brightness and clarity. Additionally, an Aqua-Glo test must be performed and the tanker is not to be used if the fuel is deemed contaminated.
9. After loading and prior to discharging a tank vehicle, gage the tank for water contamination. If water is identified, it should be drained via the gravity discharge outlet and from the manual water drain valve.

Additional Proposed Changes

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Statement of Problem and Substantiation for Public Input

The prevention of petroleum contamination during the loading phase of aircraft fuel servicing tank vehicles is important to the safety of aircraft operations and reduces expenses. It is recommended the importance of these quality assurance and contamination prevention steps be included within NFPA 407.

Submitter Information Verification

Submitter Full Name: Christopher Trumble
Organization: US Army Aviation & Missile Command
Street Address:
City:
State:
Zip:
Submittal Date: Thu May 02 11:09:01 EDT 2013
5.20.1.5
To prevent leakage or overflow from expansion of the contents due to a rise in atmospheric temperature or direct exposure to the sun, no cargo tank or compartment shall be loaded to the point where it is liquid full above 90% of its capacity.

Additional Proposed Changes

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Statement of Problem and Substantiation for Public Input

Thermal expansion can cause spills and using the verbiage, "to the point where it is liquid full" is vague. To mitigate spills a clear understanding of how much expansion space to leave should be specified and 90% capacity is recommended to be recognized and included within NFPA 407.

Submitter Information Verification

Submitter Full Name: Christopher Trumble
Organization: US Army Aviation & Missile Command
Street Address:
City:
State:
Zip:
Submittal Date: Thu May 02 13:23:01 EDT 2013
5.21 Rapid Refueling of Helicopters and Turbine Aircraft

5.21.1 Only turbine engine helicopters fueled, or aircraft fueled, with JET A or JET A-1 fuels shall be permitted to be fueled while an onboard engine is operating. Helicopters permitted, and aircraft permitted, to be fueled while an onboard engine is operating shall have all sources of ignition of potential fuel spills located above the fuel inlet port(s) and above the vents or tank openings. Ignition sources shall include, but shall not be limited to, engines, exhausts, auxiliary power units (APUs), and combustion-type cabin heater exhausts.

5.21.2 Helicopter fueling, and aircraft fueling, while onboard engines are operating shall be permitted only under the following conditions:

   1. An appropriately rated FAA-licensed helicopter pilot, licensed pilot, shall be at the aircraft controls during the entire fuel servicing process.

   2. Passengers shall be deboarded to a safe location prior to rapid refueling operations. Where the pilot in command deems it necessary for passengers to remain onboard for safety reasons, the provisions of 5.11.1 shall apply.

   3. Passengers shall not board or deboard during rapid refueling operations.

   4. Only designated personnel, properly trained in rapid refueling operations, shall operate the equipment. Written procedures shall include the safe handling of the fuel and equipment.

   5. All doors, windows, and access points allowing entry to the interior of the helicopter that, or aircraft that, are adjacent to, or in the immediate vicinity of, the fuel inlet ports shall be closed and shall remain closed during refueling operations.

   6. Fuel shall be dispensed into an open port from approved deadman-type nozzles, with a flow rate not to exceed 227 L/min (60 gpm), or it shall be dispensed through close-coupled pressure fueling ports. Where fuel is dispensed from fixed piping systems, the hose cabinet shall not extend into the rotor space. A curb or other approved barrier shall be provided to restrict the fuel servicing vehicle from coming closer than within 3 m (10 ft) of any helicopter rotating components. If a curb or approved barrier cannot be provided, fuel servicing vehicles shall be kept 6 m (20 ft) away from any helicopter rotating, or aircraft rotating, components, and a trained person shall direct fuel servicing vehicle approach and departure.

Statement of Problem and Substantiation for Public Input

Back when helicopters were granted permission to rapid refuel in NFPA 407, one of the reasons was the unnecessary wear and tear put on turbine engines when shutting down and/or restarting for fuel operations. This was considered to put the passengers of those helicopters at a greater risk of engine failure. This issue is not unique to helicopters. Most turbine aircraft in varying configurations have been or are being used for carrying paying passengers, and thus the same logic applies.

Turbine engines undergo life cycles due to the numbers of starts on them. More starts means more wear and tear on the internal components. Almost all turbine aircraft that meet the helicopter refuelling requirements can be safely refuelled with engines running using the exact same standards. This has been done in many industries world-wide for decades without incident.

Submitter Information Verification

Submitter Full Name: DAVID HAYES
Organization: SKYDIVE CITY INC
Street Address: 
City: 
State:
Zip:
Submittal Date: Sat Jun 14 13:26:21 EDT 2014
5.x Fuel Sampling. Is an important function and is used to determine the quality of petroleum products.
5.x.1 Personnel trained in fuel sampling should follow the procedures in ASTM D4057-06 (2011) when taking samples.
5.x.2 Ensure all sampling equipment is clean, dry, and free of debris, lint or fibrous material.
5.x.3 Rinse sample containers with a portion of the products being sampled to ensure the container is not contaminated with a previous material.
5.x.4 To prevent spills of a sample due to thermal expansion of the products, do not fill the sampling container above 90% of its capacity.
5.x.5 Ensure sample containers are cleaned immediately after use and store them in an area where they will remain clean until they are used again for sampling.

Additional Proposed Changes

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Statement of Problem and Substantiation for Public Input

NFPA 407 lacks mention of fuel sampling. Fuel sampling is an important phase of aircraft refueling and one which procedures are needed to ensure the integrity of the sample and mitigate other operational flight/refueling safety issues.

Submitter Information Verification

Submitter Full Name: Christopher Trumble
Organization: US Army Aviation & Missile Command
Street Address: 
City: 
State: 
Zip: 
Submittal Date: Thu May 02 13:18:10 EDT 2013
Annex C  Informational References

C.1  Referenced Publications.

The documents or portions thereof listed in this annex are referenced within the informational sections of this standard and are not part of the requirements of this document unless also listed in Chapter 2 for other reasons.

C.1.1  NFPA Publications.
National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471.
NFPA 77, Recommended Practice on Static Electricity, 2007 edition. 2014.

C.1.2  Other Publications.

C.1.2.1  API Publications.
American Petroleum Institute, 1220 L Street, N.W., Washington, DC 20005-4070.

C.1.2.2  ASTM Publications.
ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959.

C.1.2.3  CRC Publications.
Coordinating Research Council Inc., 3650 Mansell Road, Suite 140, Alpharetta, GA 30022.

C.1.2.4  EI Publications
Energy Institute, 61 Cavendish Street, London W1G 7AR, UK.


C.1.2.5  FM Publications.
FM Global, 1301 Atwood Avenue, P.O. Box 7500, Johnston, RI 02919.
FM Class 3610, Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, & III Division 1, and Class I, Zone 0 & 1 Hazardous (Classified) Locations.

C.1.2.6  ISA Publications.
ISA, 67 Alexander Drive, Research Triangle Park, NC 27709.


C.1.2.7  NTIS Publications.
National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161-2231.

C.1.2 UL Publications.  
Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, IL 60062-2096.  
ANSI/UL 60079-11, Electrical Apparatus for Use in Class I, Zones 0, 1, & 2 Hazardous (Classified) Locations—Intrinsic Safety, 2009.  

2013.  
C.1.2.  
8  
9 Other Publications.  

C.2 Informational References.  
The following documents or portions thereof are listed here as informational resources only. They are not a part of the requirements of this document.  
C.2.1 API Publications.  
American Petroleum Institute, 1220 L Street, N.W., Washington, DC 20005-4070.  
C.2.2 ASTM Publications.  
ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959.  
C.3 References for Extracts in Informational Sections—(Reserved)  

Statement of Problem and Substantiation for Public Input  
Updated to current editions, change in address for National Technical Information Service, and added a subdivision for the Energy Institute.  

Related Public Inputs for This Document  

<table>
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<th>Related Input</th>
<th>Relationship</th>
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Submitter Information Verification  
Submitter Full Name: Aaron Adamczyk  
Organization: [ Not Specified ]  
Street Address:  
City:  
State:  
Zip:  
Submittal Date: Wed Jun 11 00:36:56 EDT 2014
Public Input No. 37-NFPA 407-2014 [Section No. C.1.2.2]

C.1.2.2 ASTM Publications.
ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959.
ASTM D 323, Standard Test Method for Vapor Pressure of Petroleum Products (Reid Method),
2008 08(2014).

Statement of Problem and Substantiation for Public Input

Update the year date for standard(s)

Submitter Information Verification

Submitter Full Name: Steve Mawn
Organization: ASTM International
Street Address: 
City: 
State: 
Zip: 
Submittal Date: Mon Jul 07 10:43:05 EDT 2014