NFPA 25
Technical Committee on Inspection, Testing and Maintenance of Water-Based Systems

M E M O R A N D U M

DATE: July 29, 2014

TO: Principal and Alternate Members of the Technical Committee on Inspection, Testing and Maintenance of Water-Based Systems

FROM: Matt Klaus, Principal Fire Protection Engineer/NFPA Staff Liaison

SUBJECT: **INM-AAA AGENDA PACKAGE – A2016 Pre-First Draft Meeting**

Enclosed is the agenda for the Pre-First Draft Meeting for the Technical Committee (TC) on Inspection, Testing and Maintenance of Water-Based Systems. The meeting will be held on August 18 and 19, 2014 at the Courtyard Marriott Chicago Downtown in Chicago, Illinois.

Included in this agenda package are the Public Input submitted for committee review for the A2016 cycle. This meeting will not include taking formal actions on these Public Input, however Technical Committee Members are encouraged to review these items as many of them will be discussed in concept at the meeting or may be assigned to task groups for further study. To review these Public Inputs online, please access the following link.

www.nfpa.org/25

If you have suggestions for actions that the TC should take at this meeting, please come prepared with proposed language.

For administrative questions, please feel free to contact Elena Carroll at (617) 984-7952. For technical questions, please feel free to contact Matt Klaus at (617) 984-7448. You can also reach either of us via e-mail at ECarroll@nfpa.org or MKlaus@nfpa.org. We look forward to meeting everyone in Chicago.

PRE-FIRST DRAFT MEETING
NFPA Technical Committee on Inspection, Testing and Maintenance of Water-Based Systems

Courtyard Marriott Chicago Downtown– Chicago, IL
August 18-19, 2014

AGENDA

Monday, August 18, 2014

1. **Call to Order 8:00AM. (TC Chair Bill Koffel)**
2. **Self-Introductions of Members and Guests (Technical Committee)**
3. **Review of Distributed Meeting Materials (NFPA Staff Matt Klaus)**
4. **Approval of A2013 ROC Draft Meeting Minutes (Koffel)**
5. **Committee Actions from the FPRF Workshop - general discussion focused on what, if anything, the Committee should do resulting from the workshop.**
6. **Coordination with installation standards - are there any changes required of NFPA 25 due to changes to NFPA 13, 20, etc.?**
7. **Review of Public Input for major items for which a task group should be assigned (e.g., tagging, design evaluations… etc)**
8. **Task group assignments and work time.**
9. **Fire Protection Research Foundation Dinner (5:30-8:30 PM)**

Tuesday, August 19, 2014

1. **Resume Task Group Work**
2. **Task Group Updates**
3. **Adjournment - TBD (Koffel)**

ROC MEETING MINUTES

NFPA Technical Committee on Inspection, Testing and Maintenance of Water-Based Systems

ROC Meeting

Hyatt Chicago
Hyatt Regency – Chicago, IL
September 24-26, 2012

MEETING MINUTES

1. **Call to Order**. TC Chair Bill Koffel called the meeting to order at 8:00

2. **Self-Introductions of members and guests.** Members of the committee introduced themselves and reviewed the contact information. The meeting attendance list is attached to these minutes.

3. **Review of Distributed Meeting Materials.** Staff Liaison Matt Klaus provided an overview of the agenda materials that were sent to the committee and posted on the committee web page.

4. **Approval of A13-ROP Meeting Minutes.** The minutes of the A13-ROP Meeting were reviewed and approved without modification.

5. **Review of Meeting Procedures and Revision Process.** Matt Klaus gave a presentation on the overall meeting guidelines and the NFPA Regulations Governing TC operations.

6. **Work Load .** TC Chair Bill Koffel discussed the logistics for the meeting and the process to complete the ROC meeting.

7. **Public and Committee Comments**. The committee then processed the comments. See the ROC for the official actions on the proposals.

8. **New Business:** The TC discussed the following topics as "new business" moving into the next cycle.

    a. A potential code fund project looking at the impact of paint/loading on sprinklers.

b. The TC should review the need for a chapter on tagging prior to the ROP Meeting in the A2016 cycle. There is a lack of consistency with how systems are tagged and systems are being labeled as “impaired” for non-critical deficiencies due to a lack of a defined tagging structure in the standard.

Attendees:

Principals

William Koffel, Chair
Kerry Bell
Rick Berwick
Michael Bosma
Matthew Drysdale
James Feld
Gary Field
Russell Fleming
David Fuller
Roland Huggins
John Lake
Peter Larrimer
Russell Leavitt
Kenneth Linder
Top Myers
Gayle Pennel
Richard Ray
Bill Sheppard
Darrell Underwood
Terry Victor
John Whitney

Alternates:
David Asplund
David Baron
Gregory Bartels
Tracey Bellamy
Bruce Clarke
James Fantauzzi
Larry Keeping
Matthew Osburn
George Stanley

Cecil Bilbo, Non-Voting Member

Matthew Klaus, NFPA Staff Liaison

COMMITTEE ADDRESS LIST

Address List

07/28/2014
Matthew J. Klaus
INM-AAA

Inspection, Testing, and Maintenance of Water-Based Systems

William E. Koffel **SE** 10/20/2010
Chair **INM-AAA**
Koffel Associates, Inc.
8815 Centre Park Drive, Suite 200
Columbia, MD 21045-2107
Alternate: Erik H. Anderson
Phone/Cell: 410-540-9008
Fax: 410-750-2588
Email : wkoffel@koffel.com

Gary S. Andress **I** 7/1/1993
Principal **INM-AAA**
Liberty Mutual Property
Engineering Services
20 Riverside Road
Weston, MA 02493-2231
Alternate: Ralph Tiede
Phone/Cell: 781-891-0230 x27394 339-222-6121
Fax: 603-334-8025
Email : gary.andress@LibertyMutual.com

Kerry M. Bell **RT** 1/1/1991
Principal **INM-AAA**
UL LLC
333 Pfingsten Road
Northbrook, IL 60062-2096
Alternate: George E. Laverick
Phone/Cell: 847-664-2629
Fax: 847-313-2629
Email : kerry.m.bell@ul.com

Rick Berwick **IM** 08/09/2012
Principal **INM-AAA**
Classic Fire Protection Inc.
645 Garyray Drive
North York, ON M9L 1P9 Canada
Canadian Automatic Sprinkler Association
Alternate: Matthew Osburn
Phone/Cell: 416-740-3000
Fax: 416-740-2039
Email : rickberwick@classicfire.com

Michael J. Bosma **M** 1/18/2001
Principal **INM-AAA**
The Viking Corporation
210 North Industrial Park Road
Hastings, MI 49058
National Fire Sprinkler Association
Manufacturer
Alternate: David L. Asplund
Phone/Cell: 269-945-9501
Fax: 269-945-5187
Email : mbosma@vikingcorp.com

Bruce H. Clarke **I** 7/16/2003
Principal **INM-AAA**
American International Group, Inc. (AIG)
8606 Driscoll Court
Charlotte, NC 28269
Phone/Cell: 704-947-5000 704-534-1016
Fax:
Email : bruce.clarke@aig.com

Matthew G. Drysdale **U** 7/29/2005
Principal **INM-AAA**
The DuPont Company, Inc.
Barley Mill Plaza, 27/2110
PO Box 80027
Wilmington, DE 19880-0027
NFPA Industrial Fire Protection Section
Phone/Cell: 302-992-3132
Fax:
Email : matthew.g.drysdale@usa.dupont.com

James M. Feld **E** 1/1/1991
Principal **INM-AAA**
University of California Berkeley
317 University Hall, #1150
Berkeley, CA 94720-1150
Phone/Cell: 510-642-6552 510-812-1531
Fax: 510-643-7595
Email : jfeld@berkeley.edu

Address List

07/28/2014
Matthew J. Klaus
INM-AAA

Inspection, Testing, and Maintenance of Water-Based Systems

Russell P. Fleming **IM** 4/28/2000
Principal **INM-AAA**
National Fire Sprinkler Association, Inc.
40 Jon Barrett Road
Patterson, NY 12563-2164
National Fire Sprinkler Association
Installer/Maintainer
Alternate: George W. Stanley
Phone/Cell: 845-878-4200 x127
Fax: 845-878-4215
Email : fleming@nfsa.org

David W. Frable **U** 03/07/2013
Principal **INM-AAA**
US General Services Administration
Public Buildings Service
665 Green Meadow Lane
Geneva, IL 60134
Alternate: Todd M. Roeder
Phone/Cell: 630-845-1623 630-849-6346
Fax: 630-845-1623
Email : dave.Frable@gsa.gov

David B. Fuller **I** 10/27/2005
Principal **INM-AAA**
FM Global
1151 Boston Providence Turnpike
PO Box 9102
Norwood, MA 02062-9102
Phone/Cell: 781-255-4792
Fax: 781-551-9775
Email : david.fuller@fmglobal.com

Greg Garber **M** 10/28/2008
Principal **INM-AAA**
Pittsburg Tank & Tower Inc.
521 Bushnell Road
Virginia Beach, VA 23451-7115
Phone/Cell: 757-422-1882
Fax: 757-422-4494
Email : pitttank@cox.net

Roland J. Huggins **IM** 1/18/2001
Principal **INM-AAA**
American Fire Sprinkler Association, Inc.
12750 Merit Drive, Suite 350
Dallas, TX 75251
Alternate: James M. Fantauzzi
Phone/Cell: 214-349-5965 x121
Fax: 214-343-8898
Email : rhuggins@firesprinkler.org

Charles W. Ketner **L** 1/10/2008
Principal **INM-AAA**
National Automatic Sprinkler Fitters LU 669
Joint Apprenticeship & Training Committee
7050 Oakland Mills Road
Columbia, MD 20732
United Assn. of Journeymen & Apprentices of the Plumbing & Pipe Fitting Industry
Alternate: Gregory A. Bartels
Phone/Cell: 410-312-5202
Fax: 301-621-6699
Email : cketner@jatc.org

John Lake **E** 1/12/2000
Principal **INM-AAA**
City of Gainesville
306 NE 6th Avenue, Building B
PO Box 490, Station 9
Gainesville, FL 32602-0490
Alternate: Janet A. Washburn
Phone/Cell: 352-393-8644 352-816-0586
Fax: 352-334-2207
Email : lakeja@cityofgainesville.org

Peter A. Larrimer **U** 7/24/1997
Principal **INM-AAA**
US Department of Veterans Affairs
804 Glenshaw Avenue
Glenshaw, PA 15116-2330
Phone/Cell: 412-999-1321
Fax:
Email : peter.a.larrimer@va.gov

Address List

07/28/2014
Matthew J. Klaus

Inspection, Testing, and Maintenance of Water-Based Systems

INM-AAA

Russell B. Leavitt **U** 7/17/1998
Principal **INM-AAA**
Telgian Corporation
2615 South Industrial Park Avenue
Tempe, AZ 85282-1821
The Home Depot
Alternate: Tracey D. Bellamy
Phone/Cell: 480-753-5444 602-316-5702
Fax: 480-753-5450
Email : rleavitt@telgian.com

Kenneth W. Linder **I** 1/1/1990
Principal **INM-AAA**
Swiss Re
2 Waterside Crossing, Suite 200
Windsor, CT 06095
Alternate: Brandon W. Frakes
Phone/Cell: 860-902-7237 860-573-7722
Fax:
Email : kenneth_linder@swissre.com

Brock Mitchell **U** 10/29/2012
Principal **INM-AAA**
Extended Stay Hotels
11525 N Community House Rd
Suite 100
Charlotte, NC 28277
Phone/Cell: 704-576-9493
Fax:
Email : ericbrockmitchell@gmail.com

John D. Munno **U** 7/1/1994
Principal **INM-AAA**
Arthur J. Gallagher Risk Management Services, Inc.
1230 North Robinson Avenue
Oklahoma City, OK 73103
Edison Electric Institute
Alternate: Ronald Rispoli
Phone/Cell: 405-639-3840 405-802-1665
Fax: 405-235-6634
Email : john_munno@ajg.com

Top Myers **SE** 1/1/1990
Principal **INM-AAA**
Myers Risk Services, Inc.
Ludwigs Corner Professional Center
961 Pottstown Pike
Chester Springs, PA 19425
Alternate: Wilton Marburger
Phone/Cell: 610-321-2415 x219
Fax: 610-321-2418
Email : top@myersrisk.com

Erik G. Olsen **I** 03/03/2014
Principal **INM-AAA**
Chubb Group of Insurance Companies
132 Naughright Road
Long Valley, NJ 07853
Alternate: Thomas W. LaCorte
Phone/Cell: 201-259-9327
Fax: 908-903-5553
Email : egolsen@chubb.com

Gayle Pennel **I** 7/20/2000
Principal **INM-AAA**
Aon Fire Protection Engineering
4 Overlook Point
Lincolnshire, IL 60069-4302
TC on Fire Pumps
Phone/Cell: 847-442-6300
Fax: 847-442-6500
Email : gayle.pennel@aon.com

Peter Placidus Petrus **E** 10/18/2011
Principal **INM-AAA**
Indonesian Fire & Rescue Foundation
Indonesian Fire Service Association
Jalan Alam Asri 1/TK. 33
Jakarta, 12310 Indonesia
Phone/Cell: (6221) 750 3590
Fax: (6221) 7652123
Email : pspetrus@firerescue-indonesia.org

Address List

07/28/2014
Matthew J. Klaus

Inspection, Testing, and Maintenance of Water-Based Systems

INM-AAA

Richard M. Ray **IM** 7/28/2006
Principal **INM-AAA**
Cybor Fire Protection Company
5123 Thatcher Road
Downers Grove, IL 60515
Illinois Fire Prevention Association
Alternate: David R. Baron
Phone/Cell: 630-810-1161 630-774-1616
Fax: 630-810-0685
Email : rmr@cyborfireprotection.com

John F. Saidi **U** 1/1/1991
Principal **INM-AAA**
USDOE Stanford Site Office
Stanford Linear Accelerator Center
2575 Sand Hill Road, MS-8A
Menlo, CA 94025
Phone/Cell: 650-926-5018
Fax: 925-423-1088
Email : john.saidi@sso.science.doe.gov

J. William Sheppard **SE** 1/1/1990
Principal **INM-AAA**
Sheppard & Associates, LLC
24756 Tudor Lane
Franklin, MI 48025
Alternate: Larry Keeping
Phone/Cell: 248-757-2739 313-701-3653
Fax:
Email : jw_sheppard@yahoo.com

Gregory R. Stein **SE** 10/27/2005
Principal **INM-AAA**
Tank Industry Consultants
7740 West New York Street
Indianapolis, IN 46214
Alternate: Patrick Jon Brown
Phone/Cell: 317-271-3100
Fax: 317-271-3300
Email : stein@tankindustry.com

Darrell W. Underwood **IM** 7/28/2006
Principal **INM-AAA**
Underwood Fire Equipment, Inc.
43000 West 9 Mile Road, Suite 304
PO Box 43
Novi, MI 48375
Alternate: Damon T. Pietraz
Phone/Cell: 248-347-4975 248-770-0658
Fax: 248-347-0843
Email : darrell@underwoodfire.com

Terry L. Victor **M** 4/5/2001
Principal **INM-AAA**
Tyco/SimplexGrinnell
705 Digital Drive, Suite N
Linthicum, MD 21090-2267
Alternate: Gordon Farrell
Phone/Cell: 410-401-2160 443-286-4038
Fax: 410-401-2161
Email : tvictor@simplexgrinnell.com

John Whitney **M** 10/27/2005
Principal **INM-AAA**
Clarke Fire Protection Products, Inc.
3133 East Kemper Road
Cincinnati, OH 45241
Alternate: John T. Whitney, III
Phone/Cell: 513-520-5607
Fax: 513-771-0726
Email : jwhitney@clarkefire.com

Clayton Norred, Jr. **IM** 3/4/2009
Voting Alternate **INM-AAA**
Norred Fire Systems, LLC
1500 Jonesboro Road
West Monroe, LA 71292
National Association of Fire Equipment Distributors
Voting Alt. to NAFED rep.
Phone/Cell: 318-387-1134
Fax: 318-387-1163
Email : cnorred@norredfire.com

Address List

07/28/2014
Matthew J. Klaus
INM-AAA

Inspection, Testing, and Maintenance of Water-Based Systems

Erik H. Anderson **SE** 3/1/2011
Alternate **INM-AAA**
Koffel Associates, Inc.
8815 Centre Park Drive, Suite 200
Columbia, MD 21045-2107
Principal: William E. Koffel
Phone/Cell: 410-750-2246
Fax: 410-750-2588
Email : eanderson@koffel.com

David L. Asplund **M** 8/2/2010
Alternate **INM-AAA**
Reliable Automatic Sprinkler Company, Inc.
1470 Smith Grove Road
Liberty, SC 29657
National Fire Sprinkler Association
Manufacturer
Principal: Michael J. Bosma
Phone/Cell: 864-843-5218
Fax: 864-843-3073
Email : dasplund@reliablesprinkler.com

David R. Baron **IM** 8/9/2011
Alternate **INM-AAA**
Global Fire Protection Company
5121 Thatcher Road
Downers Grove, IL 60515
Illinois Fire Prevention Association
Principal: Richard M. Ray
Phone/Cell: 630-852-5200
Fax: 630-852-5992
Email : drb@globalfpc.com

Gregory A. Bartels **L** 08/09/2012
Alternate **INM-AAA**
Sprinkler Fitters LU 669-JATC
7050 Oakland Mills Road, Suite 100
Columbia, MD 21046
United Assn. of Journeymen & Apprentices of the Plumbing & Pipe Fitting Industry
Principal: Charles W. Ketner
Phone/Cell: 734-707-3915
Fax: 734-477-8932
Email : gbartels@jatc.org

Tracey D. Bellamy **U** 10/18/2011
Alternate **INM-AAA**
Telgian Corporation
900 Circle 75 Parkway, Suite 680
Atlanta, GA 30339
Principal: Russell B. Leavitt
Phone/Cell: 480-292-8063 619-961-8258
Fax: 480-656-3114
Email : tbellamy@telgian.com

Patrick Jon Brown **SE** 10/29/2012
Alternate **INM-AAA**
Tank Industry Consultants
7740 West New York Street
Indianapolis, IN 46214
Principal: Gregory R. Stein
Phone/Cell: 317-271-3100
Fax: 317-271-3300
Email : brown@tankindustry.com

James M. Fantauzzi **IM** 1/1/1990
Alternate **INM-AAA**
North East Fire Protection Systems Inc.
318 Charlton Road
Ballston, NY 12020
American Fire Sprinkler Association
Principal: Roland J. Huggins
Phone/Cell: 518-885-1115
Fax: 518-885-0526
Email : jimnortheastfire@nycap.rr.com

Gordon Farrell **M** 10/29/2012
Alternate **INM-AAA**
Tyco Fire Protection Products
1467 Elmwood Avenue
Cranston, RI 02910
Principal: Terry L. Victor
Phone/Cell: 401-781-8220
Fax:
Email : gordon.farrell@tycofp.com

Address List

07/28/2014
Matthew J. Klaus

Inspection, Testing, and Maintenance of Water-Based Systems

INM-AAA

Brandon W. Frakes **I** 10/23/2013
Alternate **INM-AAA**
XL Global Asset Protection Services
196 Shady Grove Lane
Advance, NC 27006
Principal: Kenneth W. Linder
Phone/Cell: 336-998-1965
Fax: 888-964-7348
Email : brandon.frakes@xlgroup.com

Larry Keeping **SE** 1/1/1992
Alternate **INM-AAA**
Professional Loss Control
3413 Wolfedale Road, Suite 6
Mississauga, ON L5C 1V8 Canada
Principal: J. William Sheppard
Phone/Cell: 905-949-2755 x204
Fax: 905-949-1752
Email : lkeeping@plcfire.com

Thomas W. LaCorte **I** 8/5/2009
Alternate **INM-AAA**
Chubb Group of Insurance Companies
PO Box 1617
3 Mountain View Road
Warren, NJ 07059
Principal: Erik G. Olsen
Phone/Cell: 908-903-5829
Fax: 908-835-0137
Email : tlacorte@chubb.com

George E. Laverick **RT** 1/1/1991
Alternate **INM-AAA**
UL LLC
333 Pfingsten Road
Northbrook, IL 60062-2096
Principal: Kerry M. Bell
Phone/Cell: 847-664-2665
Fax: 847-313-2665
Email : george.e.laverick@ul.com

Wilton Marburger **SE** 10/29/2012
Alternate **INM-AAA**
Myers Risk Services, Inc.
2102 Kimberton Road, Suite 2
Kimberton, PA 19442
Principal: Top Myers
Phone/Cell: 484-924-8155
Fax: 484-924-8156
Email : wilton@myersrisk.com

Matthew Osburn **IM** 10/27/2005
Alternate **INM-AAA**
Canadian Automatic Sprinkler Association
335 Renfrew Drive, Suite 302
Markham, ON L3R 9S9 Canada
Principal: Rick Berwick
Phone/Cell: 905-477-2270
Fax: 905-477-3611
Email : mosburn@casa-firesprinkler.org

Damon T. Pietraz **IM** 8/9/2011
Alternate **INM-AAA**
Underwood Fire Equipment, Inc.
43000 West Nine Mile Road, Suite 304
Novi, MI 48375
Principal: Darrell W. Underwood
Phone/Cell: 248-347-4975
Fax: 248-347-0843
Email : damon@underwoodfire.com

Ronald Rispoli **U** 7/24/1997
Alternate **INM-AAA**
Entergy Corporation
2414 West 5th Street
Russellville, AR 72801
Edison Electric Institute
Principal: John D. Munno
Phone/Cell: 479-858-4915 479-890-1963
Fax:
Email : rrispol@entergy.com

Address List

07/28/2014
Matthew J. Klaus

Inspection, Testing, and Maintenance of Water-Based Systems

INM-AAA

Todd M. Roeder **U** 03/03/2014
Alternate **INM-AAA**
US General Services Administration
11946 Princewood Drive
Fishers, IN 46037-3941
Principal: David W. Frable
Phone/Cell: 317-510-2228 312-968-0512
Fax:
Email : todd.roeder@gsa.gov

George W. Stanley **IM** 1/10/2008
Alternate **INM-AAA**
Wiginton Fire Protection Engineering, Inc.
699 Aero Lane
Sanford, FL 32771
National Fire Sprinkler Association
Installer/Maintainer
Principal: Russell P. Fleming
Phone/Cell: 407-585-3211 407-341-0778
Fax: 407-585-3282
Email : gws@wiginton.net

Ralph Tiede **I** 7/1/1996
Alternate **INM-AAA**
Liberty Mutual Property
20 Riverside Road
Weston, MA 02493-2231
Principal: Gary S. Andress
Phone/Cell: 781-891-0230 x27390
Fax: 781-642-6654
Email : ralph.tiede@libertymutual.com

Janet A. Washburn **E** 03/07/2013
Alternate **INM-AAA**
City of Hollywood Fire Department
2741 Stirling Road
Hollywood, FL 33312
Principal: John Lake
Phone/Cell: 954-921-3263 954-558-8334
Fax: 954-921-3239
Email : jwashburn@hollywoodfl.org

John T. Whitney, III **M** 10/23/2013
Alternate **INM-AAA**
Clarke Fire Protection Products, Inc.
133 Circle Freeway
Cincinnati, OH 45246
Principal: John Whitney
Phone/Cell: 513-475-3414 513-260-2750
Fax: 513-771-5375
Email : jowhitney@clarkefire.com

Cecil Bilbo, Jr. **SE** 03/05/2012
Nonvoting Member **INM-AAA**
Academy of Fire Sprinkler Technology, Inc.
301 North Neil Street, Suite 426
Champaign, IL 61820
Phone/Cell: 217-607-0325
Fax:
Email : cecil@sprinkleracademy.com

Robert G. Caputo **IM** 3/4/2009
Nonvoting Member **INM-AAA**
Fire & Life Safety America
Consolidated Fireprotection, Inc.
657 Cantara Lane
Vista, CA 92081
TC on Sprinkler System Installation Criteria
Phone/Cell: 760-908-7753
Fax: 760-295-7530
Email : bcaputo@cox.net

Rohit Khanna **C** 10/1/1999
Nonvoting Member **INM-AAA**
US Consumer Product Safety Commission
4330 East West Highway
Bethesda, MD 20814
Phone/Cell: 301-504-0494 x1291
Fax: 301-504-0533
Email : rkhanna@cpsc.gov

Address List

07/28/2014
Matthew J. Klaus
INM-AAA

Inspection, Testing, and Maintenance of Water-Based Systems

Thomas F. Norton **IM** 7/1/1996
Nonvoting Member **INM-AAA**
Norel Service Company, Inc.
37 Buckmaster Drive
Concord, MA 01742-2809
Phone/Cell: 617-590-4604
Fax: 978-287-5260
Email : thomas_norton@comcast.net

Matthew J. Klaus 4/5/2010
Staff Liaison **INM-AAA**
National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02169-7471
Phone/Cell: 617-984-7448
Fax: 617-984-7110
Email : mklaus@nfpa.org

A2016 REVISION CYCLE

2016 ANNUAL REVISION CYCLE

*Public Input Dates may vary according to standards and schedules for Revision Cycles may change. Please check the NFPA Website for the most up-to-date information on Public Input Closing Dates and schedules at www.nfpa.org/document # (i.e. www.nfpa.org/101) and click on the Next Edition tab.

Process Stage	Process Step	Dates for TC	Dates for TC with CC
Public Input Stage (First Draft)	Public Input Closing Date for Paper Submittal*	6/6/2014	6/6/2014
	Public Input Closing Date for Online Submittal (e-PI)*	7/7/2014	7/7/2014
	Final Date for TC First Draft Meeting	12/12/2014	9/12/2014
	Posting of First Draft and TC Ballot	1/30/2015	10/24/2014
	Final date for Receipt of TC First Draft ballot	2/20/2015	11/14/2014
	Final date for Receipt of TC First Draft ballot - recirc	2/27/2015	11/21/2014
	Posting of First Draft for CC Meeting		11/28/2014
	Final date for CC First Draft Meeting		1/9/2015
	Posting of First Draft and CC Ballot		1/30/2015
	Final date for Receipt of CC First Draft ballot		2/20/2015
	Final date for Receipt of CC First Draft ballot - recirc		2/27/2015
	Post First Draft Report for Public Comment	3/6/2015	3/6/2015
Comment Stage (Second Draft)	Public Comment Closing Date for Paper Submittal*	4/10/2015	4/10/2015
	Public Comment Closing Date for Online Submittal (e-PC)*	5/15/2015	5/15/2015
	Final Date to Publish Notice of Consent Standards (Standards that received no Comments)	5/29/2015	5/29/2015
	Appeal Closing Date for Consent Standards (Standards that received no Comments)	6/12/2015	6/12/2015
	Final date for TC Second Draft Meeting	10/30/2015	7/24/2015
	Posting of Second Draft and TC Ballot	12/11/2015	9/4/2015
	Final date for Receipt of TC Second Draft ballot	1/4/2016	9/25/2015
	Final date for receipt of TC Second Draft ballot - recirc	1/11/2016	10/2/2015
	Posting of Second Draft for CC Meeting		10/9/2015
	Final date for CC Second Draft Meeting		11/20/2015
	Posting of Second Draft for CC Ballot		12/11/2015
	Final date for Receipt of CC Second Draft ballot		1/4/2016
	Final date for Receipt of CC Second Draft ballot - recirc		1/11/2016
	Post Second Draft Report for NITMAM Review	1/18/2016	1/18/2016
Tech Session Preparation (& Issuance)	**Notice of Intent to Make a Motion (NITMAM) Closing Date**	2/19/2016	2/19/2016
	Posting of Certified Amending Motions (CAMs) and Consent Standards	4/15/2016	4/15/2016
	Appeal Closing Date for Consent Standards	5/3/2016	5/3/2016
	SC Issuance Date for Consent Standards	5/13/2016	5/13/2016
Tech Session	Association Meeting for Standards with CAMs	6/13-16/2016	6/13-16/2016
Appeals and Issuance	Appeal Closing Date for Standards with CAMs	6/29/2016	6/29/2016
	SC Issuance Date for Standards with CAMs	8/4/2016	8/4/2016

Approved: October 30, 2012 Revised December 4, 2013

PUBLIC INPUT

Public Input No. 115-NFPA 25-2014 [Global Input]

Throughout Chapter 11 and in the corresponding portion of Annex A, revise the term "foam-water system" to "foam-water sprinkler system". The sections that would be thus revised are: 11.1.1.1, Table 11.1.1.2, 11.1.3, 11.1.3.1, 11.1.4, 11.2.9.2, 11.3.2.1, 11.3.2.2,11.4.1, and A.11.4.

Additional Proposed Changes

File Name	Description	Approved
LGK_NFPA_25-2014_PI_Chapter_11.pdf	PI Form	

Statement of Problem and Substantiation for Public Input

This revision is suggested in order to match the terminology used throughout Chapter 11 with the Chapter 11 Title. Chapter 11 does not deal with all foam-water fire protection systems, as the term that is presently being utilized seems to suggest. Instead, as described in Section 11.1.3.1, Chapter 11 only covers foam-water sprinkler systems and foam-water spray systems (as per NFPA 16 installations). The ITM for other foam-water fire protection systems, such as low-, medium- and high-expansion foam systems (as per NFPA 11 installations), are not addressed in Chapter 11.

Submitter Information Verification

Submitter Full Name: Larry Keeping
Organization: Professional Loss Control
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jun 05 12:57:23 EDT 2014

Public Input No. 118-NFPA 25-2014 [Global Input]

In the Inspection Section of Table 11.1.1.2, insert a line for "Gauges" with a "Monthly" Frequency and a Reference to "Chapter 13".

In the Test Section of Table 11.1.1.2, delete the line for "Foam concentrate strainer(s)":

~~**Foam concentrate strainer(s)**~~	~~**Annually**~~	~~**11.2.7.2**~~

and reinsert that text into the Inspection Section:

Foam concentrate strainer(s)	**Annually**	**11.2.7.2**

Additional Proposed Changes

File Name	Description	Approved
LGK_NFPA_25-2014_PI_Table_11-1-1-2.pdf	PI Form	

Statement of Problem and Substantiation for Public Input

These changes are proposed because:

- As with all water-based fire protection systems, gauges need to be inspected regularly, so Table 11.1.1.2 should reflect this.
- Section 11.2.7.2 is not a testing requirement, it is a provision for visual inspection to ensure that the blow-down valve is closed and plugged.
- Editorial, to clarify the intent and to align the text in Table 11.1.1.2 with the text in the requirement of Section 11.3.3.

Submitter Information Verification

Submitter Full Name: Larry Keeping
Organization: Professional Loss Control
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jun 05 13:09:25 EDT 2014

Public Input No. 120-NFPA 25-2014 [Global Input]

Revise Table 12.1.2 to insert new inspection and testing instructions for waterflow devices as follows:

		Quarterly	Semi-annually
Waterflow devices	Inspect	X	
	Test – mechanical – water motor gongs and others	X	
	Test – vane type and pressure type		X

Additional Proposed Changes

File Name	Description	Approved
LGK_NFPA_25-2014_PI_Table_12.1.2_etc.pdf	PI Form	

Statement of Problem and Substantiation for Public Input

Currently Sections 12.2.1.1.1, 12.2.1.1.2 and 12.2.1.1.3 are part of Section 12.2 which deals with Maintenance, but these three items provide Inspection and Testing requirements. Therefore, each of these sections should be deleted from their inappropriate location(s) and replaced with complementary inspection and testing instructions in Table 12.1.2.

Submitter Information Verification

Submitter Full Name: Larry Keeping
Organization: Professional Loss Control
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jun 05 13:19:15 EDT 2014

Public Input No. 220-NFPA 25-2014 [Global Input]

Change Visual Inspection Interval for Hangers, Supports, Seismic Bracing, and Restraints throughout to Quarterly

See P.I. 172 for Chapter 10. If that proposal is accepted, similar changes should be made for consistency in Chapter 5 (5.1.1.2, 5.2.4), Chapter 11 (11.1.1.2, 11.2.4), and any other references to inspection frequency for system supports.

Statement of Problem and Substantiation for Public Input

This would improve internal consistency of inspection frequency for support elements common to multiple systems.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 172-NFPA 25-2014 [Section No. 10.1.1.2]	Proposed change to inspection frequencies in Chapter 10.

Submitter Information Verification

Submitter Full Name: Robert Upson
Organization: National Fire Sprinkler Association
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jul 03 13:07:06 EDT 2014

Public Input No. 288-NFPA 25-2014 [Global Input]

Change all Daily inspection intervals to Weekly. Change all Weekly intervals to Monthly. Change all Monthly intervals to Quarterly.

Add annex notes to valve inspections to advise owner's to inspect their own valves more frequently.

"Owners should pursue training about their systems and achieve a level of competence that permits them to perform most of the visual checks found in this standard."

Additional Proposed Changes

File Name	Description	Approved
25_Cecil_Bilbo_of_the_Academy_of_Fire_Sprinkler_Technology.docx	PI Submission	

Statement of Problem and Substantiation for Public Input

In December of 2013, the Fire Protection Research Foundation held a summit to present and discuss research about the performance of water-based fire protection systems. NFPA published the report, "US Experience with Fire Sprinklers" in June 2013. This document states "When sprinklers fail to operate, the reason most often given (64% of failures) was shutoff of the system before fire began, as may occur in the course of routine inspection or maintenance."

The report also states, "As noted … only 7% were because of a failing of the equipment rather than a failing of the people who designed, selected, maintained, and operated the equipment. If these human failings could be eliminated, the overall sprinkler failure rate would drop from the estimated 9% of reported fires to 0.6%."

So while valves being shut are of a legitimate concern, the minutes from the summit in Chicago indicates the major consensus among attendees was that enforcement and application are not happening due to many burdensome requirements. It is impractical to expect an owner to hire additional staff or an ITM contractor to inspect their systems on a daily, weekly, or and monthly basis. Inspection items that can be performed by owners/occupants and their staff should be indicated in this standard. Advice for owners pursuing education on how to perform visual checks should be part of the annex of this document.

These recommendations are based on our interpretation of the discussions held during that meeting. We believe owner's need guidance regarding work that could be performed without the need for additional help.

Submitter Information Verification

Submitter Full Name: Cecil Bilbo
Organization: Academy of Fire Sprinkler Tech
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jul 10 13:50:50 EDT 2014

Public Input No. 289-NFPA 25-2014 [Global Input]

Change the term "inspection" to "visual check" throughout the standard.

Additional Proposed Changes

File Name	Description	Approved
25_Cecil_Bilbo_of_the_Academy_of_Fire_Sprinkler_Technology.docx	PI Submission	

Statement of Problem and Substantiation for Public Input

In December of 2013, the Fire Protection Research Foundation held a summit to present and discuss research about the performance of water-based fire protection systems.

Attendees felt that using the terms "visual checks"would be a more user friendly term to describe the work expected to be performed for an inspection.

These recommendations are based on our interpretation of the discussions held during that meeting.

Submitter Information Verification

Submitter Full Name: Cecil Bilbo
Organization: Academy of Fire Sprinkler Tech
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jul 10 13:51:53 EDT 2014

Public Input No. 35-NFPA 25-2013 [Global Input]

Revise the scope of 1.1.2.1 to include dry hydrants and create a new chapter on Dry Hydrants with sections on Inspection, Testing and Maintenance.

Statement of Problem and Substantiation for Public Input

In most rural and in many suburban jurisdictions, water supplies for fire protection are frequently provided solely by dry hydrants drafting from water storage tanks or water bodies. Although water storage tanks are covered in NFPA 25, the critical equipment necessary to draft from such tanks and water bodies (dry hydrants) are not covered in NFPA 25. In order to maintain dry hydrants so they are reliable in an emergency, these devices should have an inspection, testing and maintenance provisions similar to those of private fire service mains. This is a global change to ask the TC to include dry hydrants a new chapter with specific inspection, testing and maintenance provisions for dry hydrants.

Submitter Information Verification

Submitter Full Name: Anthony Apfelbeck
Organization: Altamonte Springs Building/Fire Safety Division
Street Address:
City:
State:
Zip:
Submittal Date: Mon Dec 30 15:33:30 EST 2013

Public Input No. 3-NFPA 25-2013 [New Section after 1.3.2]

COMPLIANCE WITH SUBSEQUENT EDITIONS OF THIS STANDARD

1.3.3 Compliance with Subsequent Editions of this Standard. Compliance with subsequent editions of this standard shall be considered evidence of compliance with the AHJ's adopted edition of this standard.

A.1.3.3. Newer editions of this standard incorporate advances in knowledge, best practices and technology. Therefore, if an owner or contractor provides evidence of compliance with a newer edition of this standard than has been adopted by the AHJ, the AHJ should accept compliance with the newer edition as evidence of full code compliance with their currently adopted edition of this standard.

Statement of Problem and Substantiation for Public Input

Contractors performing ITM services are often confronted by numerous jurisdictions in their service area that may have adopted differing editions of NFPA 25. Keeping staff trained on three, four or even five differing editions of NFPA 25 and completing the associated documentation required by differing editions is an almost an impossible expectation. These complications can also create liability exposures for contractors whey they may not utilize the specific edition of NFPA 25 that a jurisdiction had adopted. If a contractor chooses to comply with the most current published edition of NFPA 25, even though it is not adopted by the AHJ, there is no reason that the most current edition of NFPA 25 should be accepted as evidence of compliance to an adopted previous edition of NFPA 25. This change memorializes this concept in the standard to provide liability protection to the contractor and specific guidance to the AHJ that this practice is allowed.

Submitter Information Verification

Submitter Full Name: Anthony Apfelbeck
Organization: Altamonte Springs Building/Fire Safety Division
Street Address:
City:
State:
Zip:
Submittal Date: Wed Oct 23 17:30:56 EDT 2013

Public Input No. 32-NFPA 25-2013 [New Section after 1.3.2]

1.3.3 Newer editions.

Subsequent editions of this standard shall be considered to be equivalent.

A.1.3.3 Newer editions of NFPA standards incorporate advances in knowledge, best practices and technology. When a newer edition is used it should be used in its entirety

Statement of Problem and Substantiation for Public Input

Many AHJ's do not allow the use of newer editions than what is locally or regionally adopted. A pointer should be placed in the standard to the acceptability of newer editions.

Submitter Information Verification

Submitter Full Name: Peter Schwab
Organization: Wayne Automatic Fire Sprinkler
Street Address:
City:
State:
Zip:
Submittal Date: Thu Dec 26 15:50:29 EST 2013

Public Input No. 14-NFPA 25-2013 [Section No. 2.1]

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.

2.1.1 **Retroactivity of Referenced Standards.**

2.1.1.1 Unless otherwise specified, the provisions of the referenced standards shall not apply to facilities, equipment, structures, or installations that existed or were approved for construction or installation prior to the effective date of the standard. Where specified, the provisions of this standard shall be retroactive.

2.1.1.2 In those cases where the authority having jurisdiction determines that the existing situation presents an unacceptable degree of risk, the authority having jurisdiction shall be permitted to apply retroactively any portions of the referenced standards deemed appropriate.

2.1.1.3 The retroactive requirements of the referenced standards shall be permitted to be modified if their application clearly would be impractical in the judgment of the authority having jurisdiction, and only where it is clearly evident that a reasonable degree of safety is provided.

Statement of Problem and Substantiation for Public Input

NFPA 25 does not currently contain any retroactivity qualification language as it applies to referenced standards. Although there is retroactivity language in Chapter 1 of most of the referenced standards listed in chapter 2, the current language in 2.1 of NFPA can lead an AHJ to infer that the current full editions of the referenced standards should be utilized to determine compliance with NFPA 25. This is clearly not the intent. The proposed language is based on the standard NFPA retroactivity language but has been slightly modified to address the specific concern of the inferred retroactivity of the "referenced standards" via section 2.1.

Submitter Information Verification

Submitter Full Name: Anthony Apfelbeck
Organization: Altamonte Springs Building/Fire Safety Division
Street Address:
City:
State:
Zip:
Submittal Date: Mon Nov 18 22:47:50 EST 2013

Public Input No. 193-NFPA 25-2014 [Section No. 2.3.1]

2.3.1 ASTM Publications.

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

ASTM D 975-~~11b~~ 14a , *Standard Specification for Diesel Fuel Oils*, ~~2011~~ 2014a .

ASTM D 3359, *Standard Test Methods for Measuring Adhesion by Tape Test*, ~~2008~~ 2008e2 .

ASTM D 6751-~~11b~~ 12 , *Standard Specification for Biodiesel Fuel Blend Stock (B100) for Middle Distillate Fuels*, ~~2011~~ 2012 .

ASTM D 7462-11, *Standard Test Method for Oxidation Stability of Biodiesel (B100) and Blends of Biodiesel with Middle Distillate Petroleum Fuel (accelerated Method)*, 2011.

Statement of Problem and Substantiation for Public Input

Update Year Dates

Submitter Information Verification

Submitter Full Name: Steve Mawn
Organization: ASTM International
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jul 02 15:45:23 EDT 2014

Public Input No. 135-NFPA 25-2014 [New Section after 3.3.10.2]

3.3.11 Exercise.

To apply physical exertion on a device or on equipment to the extent of ascertaining its operational status and functionality.

Statement of Problem and Substantiation for Public Input

To exercise equipment is an expression commonly used in the sprinkler industry and the word in its verb form is applied in NFPA 25 to both automatic transfer switches and backflow preventers. However, there is no definition to clarify what it means to exercise devices or equipment. Please note that this additional definition would require a renumbering of existing definitions since 3.3.11 is currently assigned to Fire Department Connections.

Submitter Information Verification

Submitter Full Name: Joe Scibetta
Organization: BuildingReports
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jun 10 11:10:59 EDT 2014

Public Input No. 171-NFPA 25-2014 [New Section after 3.3.21.2]

3.3.22 In service

With respect to a system, the time period beginning when the system is completed and all equipment is operational.

Statement of Problem and Substantiation for Public Input

This clarifies the meaning of the term as used in section 5.3.1.1.1 and its subsections as well as providing a better understanding of when a component system needs to start having inspections and tests.

Submitter Information Verification

Submitter Full Name: Robert Upson
Organization: National Fire Sprinkler Association
Affilliation: NFSA Engineering and Standards Committee
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jul 01 13:56:43 EDT 2014

Public Input No. 17-NFPA 25-2013 [Section No. 3.3.25]

3.3.25 Maintenance.
In water-based fire protection systems, work performed to keep equipment operable or to make repairs and to maintain equipment in accordance with the manufacturer's recommendations .

Statement of Problem and Substantiation for Public Input

Maintenance needs to follow the instructions from the manufacturer on some equipment and that is not clearly stated in the standard and needs to be added. The handbook states, "Maintenance includes not only the required functions in the standard, but also practices and procedures recommended by the manufacturer."

Submitter Information Verification

Submitter Full Name: SCOTT FUTRELL
Organization: FUTRELL FIRE CONSLT
Affilliation: None
Street Address:
City:
State:
Zip:
Submittal Date: Mon Nov 25 10:13:41 EST 2013

Public Input No. 263-NFPA 25-2014 [Section No. 3.3.40]

3.3.40 Sprinkler.

3.3.40.1 Installation Orientation.

The following sprinklers are defined according to orientation.

3.3.40.1.1 Concealed Sprinkler.

A recessed sprinkler with cover plate. [**13,** 2013]

3.3.40.1.2 Flush Sprinkler.

A sprinkler in which all or part of the body, including the shank thread, is mounted above the lower plane of the ceiling. [**13,** 2013]

3.3.40.1.3 Pendent Sprinkler.

A sprinkler designed to be installed in such a way that the water stream is directed downward against the deflector. [**13,** 2013]

3.3.40.1.4 Recessed Sprinkler.

A sprinkler in which all or part of the body, other than the shank thread, is mounted within a recessed housing. [**13,** 2013]

3.3.40.1.5 Sidewall Sprinkler.

A sprinkler having special deflectors that are designed to discharge most of the water away from the nearby wall in a pattern resembling one-quarter of a sphere, with a small portion of the discharge directed at the wall behind the sprinkler. [**13,** 2013]

3.3.40.1.6 Upright Sprinkler.

A sprinkler designed to be installed in such a way that the water spray is directed upwards against the deflector. [**13,** 2013]

3.3.40.2* Control Mode Specific Application (CMSA) Sprinkler.

A type of spray sprinkler that is capable of producing characteristic large water droplets and that is listed for its capability to provide fire control of specific high-challenge fire hazards. [**13,** 2013]

3.3.40.3 Corrosion-Resistant Sprinkler.

A sprinkler fabricated with corrosion-resistant material, or with special coatings or platings, to be used in an atmosphere that would normally corrode sprinklers. [**13,** 2013]

3.3.40.4 Dry Sprinkler.

A sprinkler secured in an extension nipple that has a seal at the inlet end to prevent water from entering the nipple until the sprinkler operates. [**13,** 2013]

3.3.40.5 Early Suppression Fast-Response (ESFR) Sprinkler.

A type of fast-response sprinkler that has a thermal element with an RTI of 50 (meters-seconds)$^{1/2}$ or less and is listed for its capability to provide fire suppression of specific high-challenge fire hazards. [**13,** 2013]

3.3.40.6 Extended Coverage Sprinkler.

~~A type of spray sprinkler with maximum coverage areas as specified in Sections 8.8 and 8.9 of NFPA 13, *Standard for the Installation of Sprinkler Systems* . [**13,** 2013]~~

(see 4.10)

3.3.40.7 Nozzles.

A device for use in applications requiring special water discharge patterns, directional spray, or other unusual discharge characteristics. [**13,** 2013]

3.3.40.8 Old-Style/Conventional Sprinkler.

A sprinkler that directs from 40 percent to 60 percent of the total water initially in a downward direction and that is designed to be installed with the deflector either upright or pendent. [**13,** 2013]

3.3.40.9 Open Sprinkler.

A sprinkler that does not have actuators or heat-responsive elements. [**13,** 2013]

3.3.40.10 Ornamental/Decorative Sprinkler.

A sprinkler that has been painted or plated by the manufacturer. [**13,** 2013]

3.3.40.11 Quick-Response Early Suppression (QRES) Sprinkler.

A type of quick-response sprinkler that has a thermal element with an RTI of 50 (meter-seconds)$^{1/2}$ or less and is listed for its capability to provide fire suppression of specific fire hazards. [**13,** 2013]

3.3.40.12 Quick-Response Extended Coverage Sprinkler.

~~A type of quick-response sprinkler that has a thermal element with an RTI of 50 (meter-seconds)$^{1/2}$ or less and complies with the extended protection areas defined in Chapter 8 of NFPA 13, *Standard for the Installation of Sprinkler Systems* . [**13,** 2013]~~

(See 4.10)

3.3.40.13 Quick-Response (QR) Sprinkler.

A type of spray sprinkler that has a thermal element with an RTI of 50 (meter-seconds)$^{1/2}$ or less and is listed as a quick-response sprinkler for its intended use. [**13,** 2013]

3.3.40.14 Residential Sprinkler.

A type of fast-response sprinkler having a thermal element with an RTI of 50 (meters-seconds)$^{1/2}$ or less, that has been specifically investigated for its ability to enhance survivability in the room of fire origin, and that is listed for use in the protection of dwelling units. [**13,** 2013]

3.3.40.15 Special Sprinkler.

~~A sprinkler that has been tested and listed as prescribed in 8.4.8 of NFPA 13, *Standard for the Installation of Sprinkler Systems* . [**13,** 2013]~~

(see 4.10)

3.3.40.16 Spray Sprinkler.

A type of sprinkler listed for its capability to provide fire control for a wide range of fire hazards. [**13,** 2013]

3.3.40.17 Standard Spray Sprinkler.

~~A spray sprinkler with maximum coverage areas as specified in Sections 8.6 and 8.7 of NFPA 13, *Standard for the Installation of Sprinkler Systems* . [**13,** 2013]~~

(see 4.10)

Statement of Problem and Substantiation for Public Input

This public input simply eliminates definitions that are in conflict with the manual of style (by referencing codes, standards or regulations) and recommends placing the definitions in a section of the standard (section 4.10) that is enforceable. Definitions are not enforceable in NFPA.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 267-NFPA 25-2014 [Chapter 4]	

Submitter Information Verification

Submitter Full Name: Marcelo Hirschler
Organization: GBH International
Street Address:
City:

State:
Zip:
Submittal Date: Mon Jul 07 14:27:24 EDT 2014

Public Input No. 18-NFPA 25-2013 [Section No. 3.3.47]

3.3.47* Testing.
A procedure used to determine the operational status of a component or system by conducting periodic physical checks, such as waterflow tests, fire pump tests, alarm tests, and trip tests of dry pipe, deluge, or preaction valves in accordance with this standard and all applicable manufacturer's recommendations .

Statement of Problem and Substantiation for Public Input

Similar language is in the maintenance section (3.3.25) and needs to be included for testing and expanded on to include testing. Testing needs to follow the instructions from the manufacturer on some equipment and that is not clearly stated in the standard and needs to be added. For reference maintenance, the handbook states, "Maintenance includes not only the required functions in the standard, but also practices and procedures recommended by the manufacturer."

Submitter Information Verification

Submitter Full Name: SCOTT FUTRELL
Organization: FUTRELL FIRE CONSLT
Affilliation: None
Street Address:
City:
State:
Zip:
Submittal Date: Mon Nov 25 10:18:34 EST 2013

Public Input No. 36-NFPA 25-2014 [Section No. 3.6.2]

3.6.2 Fire Pump.
A pump that is a provider of liquid flow and pressure dedicated to fire protection. [**20,** 2013]

3.6.2.1 C *hurn:* See definition of ***No flow (churn, shutoff)***

3.6.2.2 *No flow (churn, shutoff):* The condition when the fire pump is running but the only water passing through the impeller is a small flow that is discharged through the pump circulation relief valve or supplies the cooling for a diesel engine driver.

3.6.2.3 *Load* : As applied to a fire pump, the power supplied by the pump driver (typically measured in horsepower or equivalent units) to operate the pump.

3.6.2.4 *Net Pressure* .The discharge pressure minus the suction pressure.

3.6.2.5 *Suction Pressure* .:The pressure at the pump suction intake.

3.6.2.6. *Discharge Pressure* .:The pressure at the pump discharge.

3.6.2.7 *Peak Load* : The power supplied by the pump driver when the product of the flow rate, the net pressure, and the efficiency is at it's maximum.

3.6.2.8 *Rated flow* .:The rated flow rate for the fire pump as published by the pump manufacturer.

3.6.2.9 *Rated pressure* The net pressure developed by the fire pump when flowing at the rated flow, as published by the pump manufacturer.

3.6.2.10 *Shutoff* When used in connection with a pump running condition, see definition of ***No flow (churn, shutoff)***

Statement of Problem and Substantiation for Public Input

Added definations needed to clarify testing of fire pumps. These definations will be reviewed by NFPA 20 at their Report on Public comment Meeting

Submitter Information Verification

Submitter Full Name: Gayle Pennel
Organization: Aon Fire Protection Engineerin
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jan 02 12:58:56 EST 2014

Public Input No. 267-NFPA 25-2014 [Chapter 4]

Chapter 4 General Requirements

4.1 Responsibility of Property Owner or Designated Representative.

4.1.1* Responsibility for Inspection, Testing, Maintenance, and Impairment.

The property owner or designated representative shall be responsible for properly maintaining a water-based fire protection system.

4.1.1.1*

Inspection, testing, maintenance, and impairment procedures shall be implemented in accordance with those established in this document and in accordance with the manufacturer's instructions.

4.1.1.2

Inspection, testing, and maintenance shall be performed by qualified personnel.

4.1.1.3*

Where the property owner or designated representative is not the occupant, the property owner or designated representative shall be permitted to delegate the authority for inspecting, testing, maintenance, and the managing of impairments of the fire protection system to a designated representative.

4.1.1.4

Where a designated representative has received the authority for inspecting, testing, maintenance, and the managing of impairments, the designated representative shall comply with the requirements identified for the property owner or designated representative throughout this standard.

4.1.2* Freeze Protection.

The property owner or designated representative shall ensure that water-filled piping is maintained at a minimum temperature of 40°F (4°C) unless an approved antifreeze solution is utilized.

4.1.2.1

All areas of the building containing water-filled piping that does not have another means of freeze protection shall be maintained at a minimum temperature of 40°F (4°C).

4.1.2.2

Aboveground water-filled pipes that pass through open areas, cold rooms, passageways, or other areas exposed to temperatures below 40°F (4°C), protected against freezing by insulating coverings, frostproof casings, listed heat tracing systems, or other reliable means, shall be maintained at temperatures between 40°F (4°C) and 120°F (48.9°C).

4.1.2.3

Where other approved means of freeze protection for water-filled piping as described in 4.1.2.2 are utilized, they shall be inspected, tested, and maintained in accordance with this standard.

4.1.3* Accessibility.

The property owner or designated representative shall provide ready accessibility to components of water-based fire protection systems that require inspection, testing, and maintenance.

4.1.4 Notification of System Shutdown or Testing.

The property owner or designated representative shall notify the authority having jurisdiction, the fire department, if required, and the alarm-receiving facility before testing or shutting down a system or its supply.

4.1.4.1

The notification of system shutdown or test shall include the purpose for the shutdown or test, the system or component involved, the estimated time of shutdown or test, and the expected duration of the shutdown or test.

4.1.4.2

The authority having jurisdiction, the fire department, and the alarm-receiving facility shall be notified when the system, supply, or component is returned to service or when the test is complete.

4.1.5* Corrections and Repairs.

4.1.5.1*

The property owner or designated representative shall correct or repair deficiencies or impairments that are found during the inspection, test, and maintenance required by this standard.

4.1.5.2

Corrections and repairs shall be performed by qualified maintenance personnel or a qualified contractor.

4.1.6* Changes in Occupancy, Use, Process, or Materials.

The property owner or designated representative shall not make changes in the occupancy, the use or process, or the materials used or stored in the building without evaluation of the fire protection systems for their capability to protect the new occupancy, use, or materials.

4.1.6.1

The evaluation required by 4.1.6 shall not be considered part of the normal inspection, testing, and maintenance required by this standard.

4.1.6.2

The evaluation shall consider factors that include, but are not limited to, the following:

(1) Occupancy changes such as converting office or production space into warehousing

(2) Process or material changes such as metal stamping to molded plastics

(3) Building revisions such as relocated walls, added mezzanines, and ceilings added below sprinklers

(4) Removal of heating systems in spaces with piping subject to freezing

4.1.7* Addressing Changes in Hazard.

4.1.7.1

Where changes in the occupancy, hazard, water supply, storage commodity, storage arrangement, building modification, or other condition that affects the installation criteria of the system are identified, the property owner or designated representative shall promptly take steps to evaluate the adequacy of the installed system in order to protect the building or hazard in question.

4.1.7.2

Where the evaluation reveals that the installed system is inadequate to protect the building or hazard in question, the property owner or designated representative shall make the required corrections.

4.1.7.3

Corrections shall be approved.

4.1.8 Valve Location.

The location of shutoff valves shall be identified at the system riser or other approved locations.

4.1.9 Information Sign.

4.1.9.1

A permanently marked metal or rigid plastic information sign shall be placed at the system control riser supplying an antifreeze loop, dry system, preaction system, or auxiliary system control valve.

4.1.9.2

Each sign shall be secured with a corrosion-resistant wire, chain, or other approved means and shall indicate at least the following information:

(1) Location of the area served by the system

(2) Location of auxiliary drains and low-point drains for dry pipe and preaction systems

(3) The presence and location of antifreeze or other auxiliary systems

(4) The presence and location(s) of heat tape

4.1.10 Impairments.

4.1.10.1

Where an impairment to a water-based fire protection system occurs or is identified during inspection, testing, or maintenance activities, the procedures outlined in Chapter 15 shall be followed, including the attachment of a tag to the impaired system.

4.1.10.2

Where a water-based fire protection system is returned to service following an impairment, the system shall be verified to be working properly by means of an appropriate inspection or test as described in the table “Summary of Component Replacement [Action] Requirements” in the applicable chapters of this document.

4.2 Manufacturer's Corrective Action.

Manufacturers shall be permitted to make modifications to their own listed product in the field with listed devices that restore the original performance as intended by the listing, where acceptable to the authority having jurisdiction.

4.3 Records.

4.3.1*

Records shall be made for all inspections, tests, and maintenance of the system and its components and shall be made available to the authority having jurisdiction upon request.

4.3.1.1*

Records shall be permitted to be stored and accessed electronically.

4.3.2

Records shall indicate the following:

(1) The procedure/activity performed (e.g., inspection, test, or maintenance)

(2) The organization that performed the activity

(3) The required frequency of the activity

(4) The results and date of the activity

(5) The name and contact information of the qualified contractor or owner, including lead person for activity

4.3.3*

Records shall be maintained by the property owner.

4.3.4

As-built system installation drawings, hydraulic calculations, original acceptance test records, and device manufacturer’s data sheets shall be retained for the life of the system.

4.3.5

Subsequent records shall be retained for a period of 1 year after the next inspection, test, or maintenance of that type required by the standard.

4.4 Water Supply Status.

During inspection, testing, and maintenance, water supplies, including fire pumps, shall remain in service unless under constant attendance by qualified personnel or unless impairment procedures in Chapter 15 are followed.

4.5* Inspection.

System components shall be inspected at intervals specified in the appropriate chapters.

4.6 Testing.

4.6.1

All components and systems shall be tested to verify that they function as intended.

4.6.2

The frequency of tests shall be in accordance with this standard.

4.6.3

Fire protection system components shall be restored to full operational condition following testing, including reinstallation of plugs and caps for auxiliary drains and test valves.

4.6.4*

Test results shall be compared with those of the original acceptance test (if available) and with the most recent test results.

4.6.5*

When a component or subsystem is adjusted, repaired, reconditioned, or replaced, it shall be tested in accordance with the original acceptance test required for that subsystem or the requirements where specified by the standard.

4.6.6* Automated Testing.

(Reserved)

4.7* Performance-Based Programs.

As an alternative means of compliance and where approved by the authority having jurisdiction, components and systems shall be permitted to be inspected, tested, and maintained under a performance-based program.

4.8* Maintenance.

Maintenance shall be performed to keep the system equipment operable or to make repairs.

4.9 Safety.

4.9.1 General.

Inspection, testing, and maintenance activities shall be conducted in accordance with applicable safety regulations.

4.9.2 Confined Spaces.

Legally required precautions shall be taken prior to entering confined spaces such as tanks, valve pits, or trenches.

4.9.3 Fall Protection.

Legally required equipment shall be worn or used to prevent injury from falls to personnel.

4.9.4 Hazards.

Precautions shall be taken to address any hazards, such as protection against drowning where working on the top of a filled embankment or a supported, rubberized fabric tank, or over open water or other liquids.

4.9.5* Hazardous Materials.

4.9.5.1

Legally required equipment shall be used where working in an environment with hazardous materials present.

4.9.5.2

The property owner or designated representative shall advise anyone performing inspection, testing, and maintenance on any system under the scope of this document, with regard to hazardous materials stored on the premises.

4.9.6* Electrical Safety.

Legally required precautions shall be taken when testing or maintaining electric controllers for motor-driven fire pumps.

4.10 Specialized sprinklers

4.10.1 Extended Coverage Sprinkler. A type of spray sprinkler with maximum coverage areas as specified in Sections 8.8 and 8.9 of NFPA 13, Standard for the Installation of Sprinkler Systems.

4.10.2 Quick-Response Extended Coverage Sprinkler. A type of quick-response sprinkler that has a thermal element with an RTI of 50 (meter-seconds)1/2 or less and complies with the extended protection areas defined in Chapter 8 of NFPA 13, Standard for the Installation of Sprinkler Systems.

4.10.3 Special Sprinkler. A sprinkler that has been tested and listed as prescribed in 8.4.8 of NFPA13, Standard for the Installation of Sprinkler Systems.

4.10.4 Standard Spray Sprinkler. A spray sprinkler with maximum coverage areas as specified in Sections 8.6 and 8.7 of NFPA 13, Standard for the Installation of Sprinkler Systems.

Statement of Problem and Substantiation for Public Input

This just moves the definitions that contain references to NFPA 13 into the body.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 263-NFPA 25-2014 [Section No. 3.3.40]	

Submitter Information Verification

Submitter Full Name: Marcelo Hirschler
Organization: GBH International
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jul 07 14:39:36 EDT 2014

Public Input No. 207-NFPA 25-2014 [New Section after 4.1]

new 4.1.2 Less Frequent Tests*

new 4.1.2.1* The property owner or designated representative shall provide the inspector proof through the records required by Section 4.3 that all less frequents tests have been performed on the system(s) or unit(s) being inspected or tested.

new 4.1.2.2* When less frequent tests required by this standard have not been performed, the records required by Section 4.3 shall list the system(s) or unit(s) affected, include a description of each test not performed, and indicate the system(s) or unit(s) as having a critical deficiency.

Statement of Problem and Substantiation for Public Input

Most building owners are aware of the daily, weekly, monthly, quarterly, semiannual and annual inspection and test requirements but are unaware of the less frequent tests required by the standard. These tests are critical to determine the operating condition of the system or unit. The inspector would be doing a disservice to all involved by not pointing out on the report that these tests are needed and have not been performed. Unless there's a requirement in the standard, the inspector wouldn't ask the right questions of the building owner to show proof that these tests have been performed. Because the results of the less frequent test could reveal a problem that can have a material effect on the ability of the fire protection system or unit to function as intended in a fire event, not having the test performed should be classified as a critical deficiency.

Submitter Information Verification

Submitter Full Name: Terry Victor
Organization: Tyco/SimplexGrinnell
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jul 03 08:44:17 EDT 2014

Public Input No. 166-NFPA 25-2014 [Section No. 4.1.2 [Excluding any Sub-Sections]]

The property owner or designated representative shall ensure that water-filled piping ~~is~~ that does not have another means of freeze protection or monitoring is maintained at a minimum temperature of 40°F (4°C) unless an approved antifreeze solution is utilized.

Statement of Problem and Substantiation for Public Input

Some industrys such as the pharmaceutical industy utilize chill rooms for product storage that operate slightly above freezing in the 2-8 degree C range. These chill rooms have very detailed temperature mapping, temperature control, and data historian requirments that maintain the operating conditions of these chill rooms. The products stored in these chill rooms cannot be frozen or they are not sellable, however must be kept near freezing for product stability. A water filled pipe can exist in these areas without harm.

Submitter Information Verification

Submitter Full Name: DALE LEWIS
Organization: MARSH USA
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jul 01 10:35:01 EDT 2014

Public Input No. 86-NFPA 25-2014 [Section No. 4.1.2 [Excluding any Sub-Sections]]

The property owner or designated representative shall ensure that water-filled piping is maintained at a minimum temperature of 40°F (4°C) ~~unless an approved antifreeze~~ unless a listed antifreeze solution is utilized.

Statement of Problem and Substantiation for Public Input

NFPA 13 requires the antifreeze to be listed for use versus being approved.

Submitter Information Verification

Submitter Full Name: Kelly Nicolello
Organization: Western Regional Fire Code Dev
Street Address:
City:
State:
Zip:
Submittal Date: Tue Apr 01 18:55:50 EDT 2014

Public Input No. 217-NFPA 25-2014 [New Section after 4.1.5.1]

4.1.5.1.1*
Impairments shall be corrected or repaired immediately.

Statement of Problem and Substantiation for Public Input

This P.I. clarifies the timeline to correct impairments.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 218-NFPA 25-2014 [New Section after A.4.1.5]	

Submitter Information Verification

Submitter Full Name: Robert Upson
Organization: National Fire Sprinkler Association
Affilliation: NFSA Engineering and Standards Committee
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jul 03 12:02:13 EDT 2014

Public Input No. 284-NFPA 25-2014 [Section No. 4.1.6]

4.1.6* Changes in Occupancy, Use, Process, or Materials.

The property owner or designated representative shall not make changes in the occupancy, the use or process, or the materials used or stored in the building without performing an engineered evaluation of the fire protection systems for their capability to protect the new occupancy, use, or materials. Consideration shall be given to performing retro-commissioning of buildings in accordance with NFPA 3 to ensure the adequacy of the fire protection systems.

4.1.6.1

The

~~evaluation required by~~ ~~4.1.6~~ ~~shall not be considered part of the normal~~

analysis shall also be required when any of the following occur:

(1) When design, installation, or operational issues are revealed during inspection, testing, and maintenance

~~required by this standard.~~

(2) Upon a change of fire protection and life safety systems affecting the operation of such systems

4.1.6.2

The evaluation shall consider factors that include, but are not limited to, the following:

(1) Occupancy changes such as converting office or production space into warehousing

(2) Process or material changes such as metal stamping to molded plastics

(3) Building revisions such as relocated walls, added mezzanines, and ceilings added below sprinklers

(4) Removal of heating systems in spaces with piping subject to freezing

Additional Proposed Changes

File Name	Description	Approved
25_Cecil_Bilbo_of_the_Academy_of_Fire_Sprinkler_Technology.docx	PI Submission	

Statement of Problem and Substantiation for Public Input

In December of 2013, the Fire Protection Research Foundation held a summit to present and discuss research about the performance of water-based fire protection systems. These recommendations are based on our interpretation of the discussions held during that meeting.

The second most often cited reason for system failure was inadequate design of a system. This usually happens because of changes to the building or occupancy. Current language does not require documentation and approval of the evaluation. We believe this should be required.

The guidance we are recommending comes from the five year development process for NFPA 3. That committee developed very broad processes for evaluating the adequacy of fire protection and life safety systems. There is no other guidance found in the NFPA codes and standards for the evaluations of these systems.

Submitter Information Verification

Submitter Full Name: Cecil Bilbo
Organization: Academy of Fire Sprinkler Tech
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jul 10 13:36:18 EDT 2014

Public Input No. 287-NFPA 25-2014 [Section No. 4.1.7.1]

4.1.7.1
Where changes in the occupancy, hazard, water supply, storage commodity, storage arrangement, building modification, or other condition that affects the installation criteria of the system are identified, the property owner or designated representative shall promptly take the following steps to evaluate the adequacy of the installed system in order to protect the building or hazard in question. Consideation shall be given to performing retro-commissioning of buildings in accordance with NFPA 3 to ensure the adequacy of the fire protection systems.

Additional Proposed Changes

File Name	Description	Approved
25_Cecil_Bilbo_of_the_Academy_of_Fire_Sprinkler_Technology.docx	PI Submission	

Statement of Problem and Substantiation for Public Input

In December of 2013, the Fire Protection Research Foundation held a summit to present and discuss research about the performance of water-based fire protection systems. These recommendations are based on our interpretation of the discussions held during that meeting.

The second most often cited reason for system failure was inadequate design of a system. This usually happens because of changes to the building or occupancy. Current language does not require documentation and approval of the evaluation. We believe this should be required.

The guidance we are recommending comes from the five year development process for NFPA 3. That committee developed very broad processes for evaluating the adequacy of fire protection and life safety systems. There is no other guidance found in the NFPA codes and standards for the evaluations of these systems.

Submitter Information Verification

Submitter Full Name: Cecil Bilbo
Organization: Academy of Fire Sprinkler Tech
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jul 10 13:48:34 EDT 2014

Public Input No. 151-NFPA 25-2014 [Section No. 4.3.2]

4.3.2
Records shall indicate the following:

(1) The procedure/activity performed (e.g., inspection, test, or maintenance)

(2) The organization that performed the activity

(3) The required frequency of the activity

(4) The results and date of the activity

(5) Explicit details of all of the NFPA 25 procedures/activity, applicable to the fire protection systems throughout the facility, that were not performed with justification (e.g. inspection, test, maintenance, draining low points, and so on).

(6) The name and contact information of the qualified contractor or owner, including lead person for activity

Statement of Problem and Substantiation for Public Input

Owners of facilities are under the impression that an annual inspection by a sprinkler contractor completely fulfills all of the inspection, testing, and maintenance requirements of NFPA 25, when in fact the scope of these "inspections" is very limited and not comprehensive. The sprinkler contractor is the system expert, and the only system expert with access to the facility and as such must be relied upon to advise the building owner/occupant of all of the requirements to maintain sprinkler systems operational on a day-to-day basis.

Submitter Information Verification

Submitter Full Name: SCOTT FUTRELL
Organization: FUTRELL FIRE CONSULT & DESIGN, INC.
Street Address:
City:
State:
Zip:
Submittal Date: Sun Jun 29 09:46:55 EDT 2014

Public Input No. 158-NFPA 25-2014 [Section No. 4.3.2]

4.3.2 *
Records
~~shall indicate~~
of inspections, tests, and maintenance shall contain 7 parts in the following order :

- ~~The procedure/activity performed (e.g., inspection, test, or maintenance)~~
- ~~The organization that performed the activity~~
- ~~The required frequency of the activity~~
- ~~The results and date of the activity~~
- ~~The name and contact information of the qualified contractor or owner, including lead person for activity~~

(1)* Part 1 –Identification of the system on which the inspection, testing, or maintenance is being performed and the frequency the activity conforms to

(2) Part 2 – Owner information including:

_____ (A) Owners Name

_____ (B) Owners Address

_____ (C) Owners Contact Information (telephone, email, ect.)

_____ (D) Name and address of the property where the system on which the inspection, testing, or maintenance is being performed

(3)* Part 3 – Description and results of inspections performed

(4)* Part 4 – Description and results of tests performed

(5)* Part 5 – Description and results of maintenance performed

(6)* Part 6 – List of deficiencies and impairments found

(7) Part 7 – Qualified contractor or owner information performing the activity including:

_____ (A) Name of qualified contractor or owner

_____ (B) Lead person for the activity

_____ (C) License or certification information (if required by the AHJ)

_____ (D) Date the inspection, test, and/or maintenance was performed

Additional Proposed Changes

File Name	Description	Approved
Report_form_proposal_-_2017_-_Section_4.3.2_and_annex_sections.docx	Proposed Section 4.3.2 and related annex sections	

Statement of Problem and Substantiation for Public Input

This P.I. seeks to standardize and expand the requirements for records of inspections, tests and maintenance activities. This documentation should be in a consistent format that facilitates timely identification of deficiencies or impairments by both the owner, and by the AHJ if required. This section does not stipulate that any particular form be used, but does describe a required format that all documentation must follow.

The existing five part requirement for records in section 4.3.2 is too general and results in a variety of record formats which makes it difficult to determine if the requirements of NFPA 25 are being adhered with. This proposed seven part requirement for records will bring some consistency to the inspection forms which will be easier to interpret. Annex section are also being proposed to further clarify the intent of this section.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 159-NFPA 25-2014 [New Section after A.4.3.1.1]	

Submitter Information Verification

Submitter Full Name: Roland Asp
Organization: National Fire Sprinkler Association
Affilliation: NFSA E&S Committee
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jun 30 11:01:16 EDT 2014

NFPA 25 Standard Report Format Proposal

~~**4.3.2** Records shall indicate the following:~~

~~(1) The procedure/activity performed (e.g., inspection, test, or maintenance)~~
~~(2) The organization that performed the activity~~
~~(3) The required frequency of the activity~~
~~(4) The results and date of the activity~~
~~(5) The name and contact information of the qualified contractor or owner, including lead person for activity~~

4.3.2* Records of inspections, tests, and maintenance shall contain 7 parts in the following order:

(1)* Part 1 –Identification of the system on which the inspection, testing, or maintenance is being performed and the frequency the activity conforms to
(2) Part 2 – Owner information including:
(A) Owners Name
(B) Owners Address
(C) Owners Contact Information (telephone, email, ect.)
(D) Name and address of the property where the system on which the inspection, testing, or maintenance is being performed
(3)* Part 3 – Description and results of inspections performed
(4)* Part 4 – Description and results of tests performed
(5)* Part 5 – Description and results of maintenance performed
(6)* Part 6 – List of deficiencies and impairments found
(7) Part 7 – Qualified contractor or owner information performing the activity including:
(A) Name of qualified contractor or owner
(B) Lead person for the activity
(C) License or certification information (if required by the AHJ)
(D) Date the inspection, test, and/or maintenance was performed

A.4.3.2 Documentation of inspection, testing, and maintenance should be in a consistent format that facilitates timely identification of deficiencies or impairments by both the owner, and by the AHJ if required. This section does not stipulate that any particular form be used, but does describe a required format that all documentation must follow.

Parts 1, 2, 6, and 7 should be similar across all the various types of forms (electronic or handwritten). Parts 3, 4, and 5 may vary based upon an individual contractor or owner's needs. These parts may resemble a "checklist" format, may be in narrative form, or may be something else altogether. All that is required by this section is that there is a description of the inspection, test, or maintenance performed and the results of those actions. AHJ's may require more detail such as verification that all inspections, tests, and maintenance required at that particular frequency were, in fact, completed.

NFPA 25 Standard Report Format Proposal

A.4.3.2(1) Accurately describing the frequency on which the inspection, test, or maintenance is being conducted is important to the rest of the documentation process. The description of the work performed in parts 3, 4, and 5 will vary greatly based on what is documented here. For example, the quarterly frequency inspection items may not be extensive. On the other hand, an inspections being performed at the annual frequency should include all annual frequency items as well as the 365th daily, the 52nd weekly, the 4th quarterly and so on.

A.4.3.2(3), (4), and (5) Typically, records describing inspections, tests, and/or maintenance performed and the results of those inspections, tests, and/or maintenance are in a "checklist" form and formatted in such a manner that a "yes" answer indicates compliance with the standard and a "no" indicates a deficiency or impairment.

A.4.3.2(6) The purpose of this part of the report is to highlight deficiencies or impairments. Any deficiency or impairment found during the inspection or testing process should be described in part 6. Deficiencies or impairments noted in this section should include a reference to the section of NFPA 25 that is being violated.

Occasionally, a deficiency or impairment may be found that can be, and is corrected immediately. In this case, it is recommended that the deficiency or impairment be documented in part 6, and that the corrective action is also documented.

Public Input No. 97-NFPA 25-2014 [Section No. 4.3.4]

4.3.4
As-built system installation drawings, hydraulic calculations, original acceptance test records, **test certificate for underground piping** , **owners certificate,** and device manufacturer's data sheets shall be retained for the life of the system.

Statement of Problem and Substantiation for Public Input

The requirement of these additional forms are required by the AHJ to determine the intended design of the sprinkler system. This will assist if changes in use, process or materials take place with the occupancy.

Submitter Information Verification

Submitter Full Name: Doug Hohbein
Organization: Northcentral Fire Code Develop
Street Address:
City:
State:
Zip:
Submittal Date: Tue Apr 22 16:32:17 EDT 2014

Public Input No. 180-NFPA 25-2014 [New Section after 4.3.5]

4.3.5.1*

Records of prior inspection, testing, and maintenence shall be provided to the qualified personnel performing subsequent annual inspections, testing, and maintenance. Where inspection, testing, or maintenance required at intervals exceeding annually by sections 5.1.1.2, 6.1.1.2, 7.1.1.2, 8.1.1.2, 9.1.1.2, 10.1.1.2, 11.1.1.2, 12.1.2, 13.1.1.2, 14.2.1*, as applicable, have not been documented within the preceding required multi-year interval, each instance shall be deemed a deficiency.

Statement of Problem and Substantiation for Public Input

This proposal provides a clear means to handle long term ITM requirements that might otherwise go unnoticed and/or uncorrected due to changes in building owners or contractors.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 181-NFPA 25-2014 [New Section after A.4.3.3]	
Public Input No. 182-NFPA 25-2014 [Section No. 5.1.1.2]	
Public Input No. 183-NFPA 25-2014 [New Section after A.4.9.6]	
Public Input No. 184-NFPA 25-2014 [Section No. A.14.2.1]	
Public Input No. 185-NFPA 25-2014 [Section No. 6.1.1.2]	
Public Input No. 186-NFPA 25-2014 [Section No. 7.1.1.2]	
Public Input No. 187-NFPA 25-2014 [Section No. 8.1.1.2]	
Public Input No. 188-NFPA 25-2014 [Section No. 9.1.1.2]	
Public Input No. 189-NFPA 25-2014 [Section No. 10.1.1.2]	
Public Input No. 190-NFPA 25-2014 [Section No. 11.1.1.2]	
Public Input No. 191-NFPA 25-2014 [Section No. 12.1.2]	
Public Input No. 192-NFPA 25-2014 [Section No. 13.1.1.2]	
Public Input No. 194-NFPA 25-2014 [New Section after A.5.4.3]	
Public Input No. 195-NFPA 25-2014 [New Section after A.6.3.4]	
Public Input No. 196-NFPA 25-2014 [New Section after A.8.1]	
Public Input No. 197-NFPA 25-2014 [New Section after A.9.1]	
Public Input No. 198-NFPA 25-2014 [New Section after A.10.1]	
Public Input No. 199-NFPA 25-2014 [New Section after A.10.3.3.3.1]	
Public Input No. 200-NFPA 25-2014 [New Section after A.11.4.4.2]	
Public Input No. 201-NFPA 25-2014 [New Section after A.13.1]	

Submitter Information Verification

Submitter Full Name: Robert Upson
Organization: National Fire Sprinkler Association
Affilliation: NFSA Engineering and Standards Committee
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jul 02 11:59:02 EDT 2014

Public Input No. 182-NFPA 25-2014 [Section No. 5.1.1.2]

5.1.1.2 *

Table 5.1.1.2 shall be used to determine the minimum required frequencies for inspection, testing, and maintenance.

Table 5.1.1.2 Summary of Sprinkler System Inspection, Testing, and Maintenance

Item	Frequency	Reference
Inspection		
Gauges (dry, preaction, and deluge systems)	Weekly/quarterly	5.2.4.2, 5.2.4.3, 5.2.4.4
Control valves		Table 13.1.1.2
Waterflow alarm devices	Quarterly	5.2.5
Valve supervisory signal devices	Quarterly	5.2.5
Supervisory signal devices (except valve supervisory switches)	Quarterly	5.2.5
Gauges (wet pipe systems)	Quarterly	5.2.4.1
Hydraulic nameplate	Quarterly	5.2.6
Buildings	Annually (prior to freezing weather)	4.1.1.1
Hanger/seismic bracing	Annually	5.2.3
Pipe and fittings	Annually	5.2.2
Sprinklers	Annually	5.2.1
Spare sprinklers	Annually	5.2.1.4
Information sign	Annually	5.2.8
Fire department connections		Table 13.1.1.2
Valves (all types)		Table 13.1.1.2
Obstruction, internal inspection of piping	5 years	14.2
Heat trace	Per manufacturer's requirements	5.2.7
Test		
Waterflow alarm devices		
Mechanical devices	Quarterly	5.3.3.1
Vane and pressure switch–type devices	Semiannually	5.3.3.2
Valve supervisory signal devices		Table 13.1.1.2
Supervisory signal devices (except valve supervisory switches)		Table 13.1.1.2
Main drain		Table 13.1.1.2
Antifreeze solution	Annually	5.3.4
Gauges	5 years	5.3.2
Sprinklers (extra-high or greater temperature solder type)	5 years	5.3.1.1.1.4
Sprinklers (fast-response)	At 20 years and every 10 years thereafter	5.3.1.1.1.3
Sprinklers	At 50 years and every 10 years thereafter	5.3.1.1.1
Sprinklers	At 75 years and every 5 years thereafter	5.3.1.1.1.5
Sprinklers (dry)	At 10 years and every 10 years thereafter	5.3.1.1.1.6
Sprinklers (in harsh environments)	5 years	5.3.1.1.2
Valves (all types)		Table 13.1.1.2
Valve status test		13.3.1.2.1
Maintenance		
Valves (all types)		Table 13.1.1.2
Low-point drains (dry pipe system)		13.4.4.3.2
Sprinklers and automatic spray nozzles protecting commercial cooking equipment and ventilation systems	Annually	5.4.1.9
Investigation		
Obstruction		14.3

Statement of Problem and Substantiation for Public Input

Links to proposed documentary/deficiency requirement for long term ITM intervals.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 180-NFPA 25-2014 [New Section after 4.3.5]	

Submitter Information Verification

Submitter Full Name: Robert Upson
Organization: National Fire Sprinkler Association
Affilliation: NFSA Engineering and Standards Committee
Street Address:
City:
State:
Zip:

Submittal Date:	Wed Jul 02 12:51:13 EDT 2014

Public Input No. 254-NFPA 25-2014 [Section No. 5.1.1.2]

5.1.1.2

Table 5.1.1.2 shall be used to determine the minimum required frequencies for inspection, testing, and maintenance.

Table 5.1.1.2 Summary of Sprinkler System Inspection, Testing, and Maintenance

Item	Frequency	Reference
Inspection		
Gauges (dry, preaction, and deluge systems)	Weekly/quarterly	5.2.4.2, 5.2.4.3, 5.2.4.4
Control valves		Table 13.1.1.2
Waterflow alarm devices	Quarterly	5.2.5
Valve supervisory signal devices	Quarterly	5.2.5
Supervisory signal devices (except valve supervisory switches)	Quarterly	5.2.5
Gauges (wet pipe systems)	Quarterly	5.2.4.1
Hydraulic nameplate	Quarterly	5.2.6
Buildings	Annually (prior to freezing weather)	4.1.1.1
Hanger/seismic bracing	Annually	5.2.3
Pipe and fittings	Annually	5.2.2
Sprinklers	Annually	5.2.1
Spare sprinklers	Annually	5.2.1.4
Information sign	Annually	5.2.8
Fire department connections		Table 13.1.1.2
Valves (all types)		Table 13.1.1.2
Obstruction, internal inspection of piping	5 years	14.2
Heat trace	Per manufacturer's requirements	5.2.7
Test		
Waterflow alarm devices		
Mechanical devices	Quarterly	5.3.3.1
Vane and pressure switch–type devices	Semiannually	5.3.3.2
Valve supervisory signal devices		Table 13.1.1.2
Supervisory signal devices (except valve supervisory switches)		Table 13.1.1.2
Main drain		Table 13.1.1.2
Antifreeze solution	Annually	5.3.4
Gauges	5 years	5.3.2
Sprinklers (extra-high or greater temperature solder type)	5 years	5.3.1.1.1.4
Sprinklers (fast-response)		
~~At 20~~		
At 30 years and every 10 years thereafter	5.3.1.1.1.3	
Sprinklers	At 50 years and every 10 years thereafter	5.3.1.1.1
Sprinklers	At 75 years and every 5 years thereafter	5.3.1.1.1.5
Sprinklers (dry)	At 10 years and every 10 years thereafter	5.3.1.1.1.6
Sprinklers (in harsh environments)	5 years	5.3.1.1.2
Valves (all types)		Table 13.1.1.2
Valve status test		13.3.1.2.1
Maintenance		
Valves (all types)		Table 13.1.1.2
Low-point drains (dry pipe system)		13.4.4.3.2
Sprinklers and automatic spray nozzles protecting commercial cooking equipment and ventilation systems	Annually	5.4.1.9
Investigation		
Obstruction		14.3

Statement of Problem and Substantiation for Public Input

Section 5.3.1.1.1.3 & Table 5.1.1.2

Fast response sprinklers have been required to be installed in new systems for over 25 years. Operational failures of sprinklers due to less structural mass have not been experienced as initially reported. Testing of representative samples of existing fast response sprinklers has not shown failures. Cost to replace or randomly test a representative sample of existing sprinklers at a 20 year cycle is not warranted.

Submitter Information Verification

Submitter Full Name: Frank Van Overmeiren
Organization: FP&C Consultants, Inc.
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jul 07 13:35:42 EDT 2014

Public Input No. 48-NFPA 25-2014 [Section No. 5.1.1.2]

5.1.1.2

Table 5.1.1.2 shall be used to determine the minimum required frequencies for inspection, testing, and maintenance.

Table 5.1.1.2 Summary of Sprinkler System Inspection, Testing, and Maintenance

Item	Frequency	Reference
Inspection		
Gauges (dry, preaction, and deluge systems)	Weekly/quarterly	5.2.4.2, 5.2.4.3, 5.2.4.4
Control valves		Table 13.1.1.2
Waterflow alarm devices	Quarterly	5.2.5
Valve supervisory signal devices	Quarterly	5.2.5
Supervisory signal devices (except valve supervisory switches)	Quarterly	5.2.5
Gauges (wet pipe systems)	Quarterly	5.2.4.1
Hydraulic nameplate	Quarterly	5.2.6
Buildings	Annually (prior to freezing weather)	4.1.1.1
Hanger/seismic bracing	Annually	5.2.3
Pipe and fittings	Annually	5.2.2
Sprinklers	Annually	5.2.1
Spare sprinklers	Annually	5.2.1.4
Information sign	Annually	5.2.8
Fire department connections		Table 13.1.1.2
Valves (all types)		Table 13.1.1.2
Obstruction, internal inspection of piping	5 years	14.2
Heat trace	Per manufacturer's requirements	5.2.7
Test		
Waterflow alarm devices		
Mechanical devices	Quarterly	5.3.3.1
Vane and pressure switch–type devices	Semiannually	5.3.3.2
Valve supervisory signal devices		Table 13.1.1.2
Supervisory signal devices (except valve supervisory switches)		Table 13.1.1.2
Main drain		Table 13.1.1.2
Antifreeze solution	Annually	5.3.4
Gauges	5 years	5.3.2
Sprinklers (extra-high or greater temperature solder type)	5 years	5.3.1.1.1.4
Sprinklers (fast-response)	At 20 years and every 10 years thereafter	5.3.1.1.1.3
Sprinklers	At 50 years and every 10 years thereafter	5.3.1.1.1
Sprinklers	At 75 years and every 5 years thereafter	5.3.1.1.1.5
Sprinklers (dry)	At 10 years and every 10 years thereafter	5.3.1.1.1.6
Sprinklers (in harsh environments)	5 years	5.3.1.1.2
Valves (all types)		Table 13.1.1.2
Valve status test		13.3.1.2.1
Maintenance		
Valves (all types)		Table 13.1.1.2
Low-point drains (dry pipe system)		13.4.4.3.2
Sprinklers and automatic spray nozzles protecting commercial cooking equipment and ventilation systems	Annually	5.4.1.9
Investigation		
Obstruction		14.3

Statement of Problem and Substantiation for Public Input

Table 5.1.1.2

Maintenance

Sprinklers & Automatic spray nozzles protecting commercial cooking equipment & ventilation systems references section 5.4.1.9 however there does not seem to be a section 5.4.1.9 in NFPA 25...

Submitter Information Verification

Submitter Full Name: Fred Drake
Organization: Caltin Incurance
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jan 16 12:28:24 EST 2014

Public Input No. 103-NFPA 25-2014 [New Section after 5.2.1.1.2]

5.2.1.1.2.1*

Where replacing residential sprinklers manufactured prior to 2003 that are no longer available from the manufacturer and are installed using a design density less than 0.05 gpm/ft² (204 mm/min), a residential sprinkler with an equivalent K-factor (± 5%) shall be permitted to be used provided the currently listed coverage area for the replacement sprinkler is not exceeded.

A.5.2.1.1.2.1

It is recognized that the flow and pressure available to the replacement sprinkler might be less than its current flow and pressure requirement.

Statement of Problem and Substantiation for Public Input

In late 2002, the requirement for a minimum .05 density for listing of residential sprinklers and a minimum .10 density for NFPA 13 systems was added in the 2002 edition of NFPA 13. Prior to this time, there was no minimum density requirement. Many of those sprinklers are no longer manufactured. So when sprinklers need to be replaced, the owner needs an option. Many AHJ's are requiring that the system be recalculated with the new sprinkler listings and this means re-piping large portions of systems.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 104-NFPA 25-2014 [New Section after 5.2.1.1.2]	

Submitter Information Verification

Submitter Full Name: Peter Schwab
Organization: Wayne Automatic Fire Sprinkler
Street Address:
City:
State:
Zip:
Submittal Date: Thu May 22 10:17:25 EDT 2014

Public Input No. 104-NFPA 25-2014 [New Section after 5.2.1.1.2]

5.2.1.1.2.1

Where residential sprinklers require replacement and the same model of residential sprinkler is no longer available, replacement residential sprinklers shall either have a consistent hydraulic demand with the original residential sprinklers or calculations shall be provided to demonstrate that the system supply meets the demand of the replacement sprinklers.

Statement of Problem and Substantiation for Public Input

This PI is opposite of another PI that has been submitted on this same matter. Many residential sprinklers are no longer manufactured because of the minimum density requirement established in 2002.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 103-NFPA 25-2014 [New Section after 5.2.1.1.2]	Opposite

Submitter Information Verification

Submitter Full Name: Peter Schwab
Organization: Wayne Automatic Fire Sprinkler
Street Address:
City:
State:
Zip:
Submittal Date: Thu May 22 10:36:36 EDT 2014

Public Input No. 215-NFPA 25-2014 [Section No. 5.2.1.1.2]

5.2.1.1.2

Any sprinkler that shows signs of any of the following shall be replaced:

(1) Leakage

(2) Unacceptable levels of * Corrosion

(3) Physical damage

(4) Loss of fluid in the glass bulb heat-responsive element

(5) Unacceptable levels of * Loading

(6) Painting unless painted by the sprinkler manufacturer

Additional Proposed Changes

File Name	Description	Approved
25_Victor_PI_xxx_-_Unacceptable_Corrosion_and_Loading.pdf	PI Form	

Statement of Problem and Substantiation for Public Input

NFPA 25 now accepts some level of corrosion and some level of loading of sprinklers. However, this section still states that corroded or loaded sprinklers shall be replaced. By using the term unacceptable, the responsibility of determining if the sprinkler(s) can remain in service rests on the AHJ. The annex text to this section says that the inspector should use a degree of judgment to determine if a sprinkler has too much corrosion, or if the corrosion is on the wrong part of the sprinkler. Asking the inspector to use a degree of judgment to determine if corrosion on a sprinkler will affect the operation or performance of a sprinkler is unreasonable. The only reasonable way to make that determination is to send sprinklers for testing, and if the tests reveal that sprinklers are okay, they can stay in service. A failed test would meet the definition of “unacceptable” and the sprinkler(s) must be replaced.

Submitter Information Verification

Submitter Full Name: Terry Victor
Organization: SimplexGrinnell
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jul 03 11:40:51 EDT 2014

Public Input No. 280-NFPA 25-2014 [New Section after 5.2.1.1.5]

5.2.1.1.5.1* Sprinklers Installed above listed ceiling membrane materials per NFPA 13, section 8.15.15 shall be inspected during scheduled periods when the listed membrane ceiling material is not in place.

A.5.2.1.1.5.1 Where temporary listed membrane ceilings are installed, NFPA 13 allows sprinkler protection to be omitted from below the “drop out” membrane ceiling. These areas should be inspected during periods when the membrane ceiling is not present but not less than one time per year.

Additional Proposed Changes

File Name	Description	Approved
5.2.docx	PI Submission	

Statement of Problem and Substantiation for Public Input

The NFPA 13 Installation Committee (SSI) accepted Comment No. 330 during the 2nd draft committee meeting, This new section 8.15.15 allows the installation of listed membrane or drop out ceiling materials to be installed below sprinklers in areas such as boat repair facilities and similar uses, where sprinklers above the drop out ceiling are not visible from the floor level Inspections should be scheduled to coincide with time periods when such ceiling materials are not in place.

Submitter Information Verification

Submitter Full Name: ROBERT CAPUTO
Organization: FIRE LIFE SFTY AMERICA
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jul 10 13:22:48 EDT 2014

Public Input No. 290-NFPA 25-2014 [New Section after 5.2.1.1.5]

5.2.1.1.5.1* Sprinklers Installed above listed ceiling membrane materials per NFPA 13, section 8.15.15 shall be inspected during scheduled periods when the listed membrane ceiling material is not in place.

A.5.2.1.1.5.1 Where temporary listed membrane ceilings are installed, NFPA 13 allows sprinkler protection to be omitted from below the “drop out” membrane ceiling. These areas should be inspected during periods when the membrane ceiling is not present but not less than one time per year.

Statement of Problem and Substantiation for Public Input

The NFPA 13 Installation Committee (SSI) accepted Comment No. 330 during the 2nd draft committee meeting, This new section 8.15.15 allows the installation of listed membrane or drop out ceiling materials to be installed below sprinklers in areas such as boat repair facilities and similar uses, where sprinklers above the drop out ceiling are not visible from the floor level Inspections should be scheduled to coincide with time periods when such ceiling materials are not in place.

Submitter Information Verification

Submitter Full Name: Robert Caputo
Organization: Telgian Corp
Street Address:
City:
State:
Zip:
Submittal Date: Fri Jul 18 08:06:19 EDT 2014

Public Input No. 250-NFPA 25-2014 [Section No. 5.2.1.1.6]

5.2.1.1.6
Escutcheons and coverplates for recessed, flush, and concealed sprinklers shall be replaced with their listed escutcheon or coverplate if found missing during the inspection. If the listed escutcheon or coverplate is no longer commercially available, the sprinkler shall be replaced.

Statement of Problem and Substantiation for Public Input

May times a "generic" escutcheon or coverplate is installed. This is improper and needs to be pointed out by NFPA 25.

Submitter Information Verification

Submitter Full Name: John Denhardt
Organization: Strickland Fire Protection, Inc
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jul 07 09:43:56 EDT 2014

Public Input No. 136-NFPA 25-2014 [New Section after 5.2.1.4]

5.2.1.4.1 In the event that the annual inspection of the supply of spare sprinklers reveals one or more sprinklers that are part of a recall program, the property owner or designated representative shall be notified in writing.

5.2.1.4.1.2 If the notification specified in 5.2.1.4.1 is submitted, the property owner or designated representative shall take measures to ensure that either the recalled sprinklers are not installed in the building or, if installed, that they are replaced along with the recalled sprinklers in the spare sprinkler cabinet.

Statement of Problem and Substantiation for Public Input

During the last revision cycle, a proposal was submitted to address recalled sprinklers in the spare sprinkler cabinet. However, due to the committee's re-write and relocation of the submittal to another part of the chapter, many objections were raised and the committee's own re-write was ultimately defeated. This PI endeavors to re-introduce the need to identify recalled sprinklers and at the same time address the following concerns raised during the last cycle: 1) as with the proposal from the last cycle, the inspection that would reveal recalled sprinklers is limited to the spare sprinkler cabinet only. The committee's re-write and re-location of the original proposal made such an inspection building-wide, which is unrealistic, considering the floor-level inspection of sprinklers, 2) it is hoped that the phrasing "in the event" will address service provider concerns over circumstances whereby the service provider may not be able to determine if a sprinkler is subject to a recall on an initial inspection but may, in fact, have the circumstances to make that determination on a subsequent inspection. One of the objections raised during the last cycle had to do with the repercussions of not identifying a recalled sprinkler. However, a qualified sprinkler technician is one who is competent and capable. In a digital age, at a time when information can be easily accessed and rapidly verified, identifying a sprinkler in a cabinet that is subject to a recall, at some point during the course of inspections on a property, falls well within the realm of a competent, capable technician, and 3) the objection was raised that oftentimes the spare sprinkler cabinet is not representative of the sprinklers in the building. This PI addresses that problem by having the property owner or designated representative determine whether the recalled sprinklers found in the sprinkler cabinet actually exist in the building or if the recalled sprinklers in the cabinet are, in fact, not representative of what is installed in the building. In short, the property owner needs to know if there are recalled heads in their building and this is an effective way to help them determine that while, at the same time, recognizing the legitimate concerns service providers have over liability issues inherent with expecting a technician to observe recalled sprinklers in a building-wide inspection from the floor level.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 137-NFPA 25-2014 [Section No. A.4.1.5]	
Public Input No. 138-NFPA 25-2014 [New Section after A.5.2.1.3]	

Submitter Information Verification

Submitter Full Name: Joe Scibetta
Organization: BuildingReports
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jun 10 11:21:42 EDT 2014

Public Input No. 281-NFPA 25-2014 [New Section after 5.2.2.4]

5.2.2.4.1 Pipe and fittings installed above listed ceiling membrane materials per NFPA 13, section 8.15.15 shall be inspected during scheduled periods when the listed membrane ceiling material is not in place.

Additional Proposed Changes

File Name	Description	Approved
5.2.docx	PI Submission	

Statement of Problem and Substantiation for Public Input

The NFPA 13 Installation Committee (SSI) accepted Comment No. 330 during the 2nd draft committee meeting, This new section 8.15.15 allows the installation of listed membrane or drop out ceiling materials to be installed below sprinklers in areas such as boat repair facilities and similar uses, where sprinklers above the drop out ceiling are not visible from the floor level Inspections should be scheduled to coincide with time periods when such ceiling materials are not in place.

Submitter Information Verification

Submitter Full Name: ROBERT CAPUTO
Organization: FIRE LIFE SFTY AMERICA
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jul 10 13:27:54 EDT 2014

Public Input No. 291-NFPA 25-2014 [New Section after 5.2.2.4]

5.2.2.4.1 Pipe and fittings installed above listed ceiling membrane materials per NFPA 13, section 8.15.15 shall be inspected during scheduled periods when the listed membrane ceiling material is not in place.

Statement of Problem and Substantiation for Public Input

The NFPA 13 Installation Committee (SSI) accepted Comment No. 330 during the 2nd draft committee meeting, This new section 8.15.15 allows the installation of listed membrane or drop out ceiling materials to be installed below sprinklers in areas such as boat repair facilities and similar uses, where sprinklers above the drop out ceiling are not visible from the floor level Inspections should be scheduled to coincide with time periods when such ceiling materials are not in place.

Submitter Information Verification

Submitter Full Name: Robert Caputo
Organization: Telgian Corp
Street Address:
City:
State:
Zip:
Submittal Date: Fri Jul 18 08:07:12 EDT 2014

Public Input No. 282-NFPA 25-2014 [New Section after 5.2.3.4]

5.2.3.4.1 Hangers and seismic braces installed above listed ceiling membrane materials per NFPA 13, section 8.15.15 shall be inspected during scheduled periods when the listed membrane ceiling material is not in place.

Additional Proposed Changes

File Name	Description	Approved
5.2.docx	PI Submission	

Statement of Problem and Substantiation for Public Input

The NFPA 13 Installation Committee (SSI) accepted Comment No. 330 during the 2nd draft committee meeting, This new section 8.15.15 allows the installation of listed membrane or drop out ceiling materials to be installed below sprinklers in areas such as boat repair facilities and similar uses, where sprinklers above the drop out ceiling are not visible from the floor level Inspections should be scheduled to coincide with time periods when such ceiling materials are not in place.5.2.3.4.1 Hangers and seismic braces installed above listed ceiling membrane materials per NFPA 13, section 8.15.15 shall be inspected during scheduled periods when the listed membrane ceiling material is not in place.

Submitter Information Verification

Submitter Full Name: ROBERT CAPUTO
Organization: FIRE LIFE SFTY AMERICA
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jul 10 13:29:58 EDT 2014

Public Input No. 292-NFPA 25-2014 [New Section after 5.2.3.4]

5.2.3.4.1 Hangers and seismic braces installed above listed ceiling membrane materials per NFPA 13, section 8.15.15 shall be inspected during scheduled periods when the listed membrane ceiling material is not in place.

Statement of Problem and Substantiation for Public Input

The NFPA 13 Installation Committee (SSI) accepted Comment No. 330 during the 2nd draft committee meeting, This new section 8.15.15 allows the installation of listed membrane or drop out ceiling materials to be installed below sprinklers in areas such as boat repair facilities and similar uses, where sprinklers above the drop out ceiling are not visible from the floor level Inspections should be scheduled to coincide with time periods when such ceiling materials are not in place.

Submitter Information Verification

Submitter Full Name: Robert Caputo
Organization: Telgian Corp
Street Address:
City:
State:
Zip:
Submittal Date: Fri Jul 18 08:07:50 EDT 2014

Public Input No. 43-NFPA 25-2014 [Section No. 5.2.4.3]

5.2.4.3
Where air pressure supervision is connected to a constantly attended location, gauges shall be inspected ~~monthly~~ quarterly .

Statement of Problem and Substantiation for Public Input

A monthly inspection of this seems excessive. If quarterly it can be accomplished in accordance with regular gauge inspections. Failure of the air supply on a dry system will result in a flooding of the system and a flow alarm. Loss of water pressure was determined by the committee to be determined on a quarterly basis with a wet system. Why would not this same criteria apply to a dry system?

Submitter Information Verification

Submitter Full Name: KENT WISE
Organization: LDS CHURCH
Street Address:
City:
State:
Zip:
Submittal Date: Fri Jan 10 12:17:53 EST 2014

Public Input No. 89-NFPA 25-2014 [Section No. 5.2.5]

5.2.5 Waterflow Alarm and Supervisory Signal Initiating Device.
Waterflow alarm and supervisory signal initiating devices shall be inspected quarterly to verify that they are free of physical damage, or debris such as in alarm bells or water motor gongs . Such debris shall be cleaned out as needed so the alarm sounds clearly.

Statement of Problem and Substantiation for Public Input

The debris in alarm devices can prevent alarm from operating, it can prevent false alarms. Strainerss will fill up with debris and scale and prevent the water motor from operating.

Submitter Information Verification

Submitter Full Name: John Hulett
Organization: Western States Fire Protection
Street Address:
City:
State:
Zip:
Submittal Date: Thu Apr 10 15:48:09 EDT 2014

Public Input No. 109-NFPA 25-2014 [New Section after 5.2.9]

5.2.10 Antifreeze Information Sign. An antifreeze information sign shall be placed at the antifreeze system main valve that indicates the manufacture type and brand of the antifreeze solution, the concentration by volume of the antifreeze solution used, and the volume of the antifreeze solution used in the system.

Additional Proposed Changes

File Name	Description	Approved
LGK_NFPA_25-2014_PI_5-2-10.pdf	PI Form	

Statement of Problem and Substantiation for Public Input

This text was adapted from NFPA 13. With the concern about the hazard introduced by high concentrations of antifreeze solution, it is critical that the details of the antifreeze solution be posted at the antifreeze loop, so that all parties can be aware of what is on hand within a system.

Submitter Information Verification

Submitter Full Name: Larry Keeping
Organization: Professional Loss Control
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jun 05 12:46:32 EDT 2014

Public Input No. 150-NFPA 25-2014 [Section No. 5.3.1.1.1.3]

5.3.1.1.1.3*
Sprinklers manufactured using fast-response elements that have been in service for ~~20~~ 50 years shall be replaced or representative samples shall be tested and then retested at 10-year intervals.

Statement of Problem and Substantiation for Public Input

1 - Justification for 20 year testing of fast response element sprinklers has not been provided.
2 - Costs to test or replace ESFR sprinklers alone, in large warehouses put an undue and unjustified burden on property owners.
3 - Fast response sprinkler technology is now more than 30 years old and many fast response sprinklers are installed without evidence or documentation that they fail and that they require testing and / or replacement.
4 - Nationwide 20 year testing of fast response sprinklers is not being enforced or performed. I have personally discussed this issue with contractors, AHJ's, insurance companies, and government organizations. Most are not aware that this testing is a requirement of NFPA 25.

Submitter Information Verification

Submitter Full Name: SCOTT FUTRELL
Organization: FUTRELL FIRE CONSULT & DESIGN, INC.
Street Address:
City:
State:
Zip:
Submittal Date: Sun Jun 29 09:31:55 EDT 2014

Public Input No. 256-NFPA 25-2014 [Section No. 5.3.1.1.1.3]

5.3.1.1.1.3 * .
Sprinklers manufactured using fast-response elements that have been in service ~~for 20~~ for 30 years shall be replaced or representative samples shall be tested and then retested at 10-year intervals.

Statement of Problem and Substantiation for Public Input

Section 5.3.1.1.1.3

Fast response sprinklers have been required to be installed in new systems for over 25 years. Operational failures of sprinklers due to less structural mass have not been experienced as initially reported. Testing of representative samples of existing fast response sprinklers has not shown failures. Cost to replace or randomly test a representative sample of existing sprinklers at a 20 year cycle is not warranted.

Submitter Information Verification

Submitter Full Name: Frank Van Overmeiren
Organization: FP&C Consultants, Inc.
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jul 07 13:41:07 EDT 2014

Public Input No. 164-NFPA 25-2014 [New Section after 5.3.1.1.1.6]

5.3.1.1.1.7
Sprinklers that have been in service for 10 years in cold storage areas shall be replaced or representative samples shall be tested and then retested at 10-year intervals.

Statement of Problem and Substantiation for Public Input

This P.I. would change sprinklers in cold storage from a 5 year test interval suggested under "harsh conditions" to a 10 year test interval based on past experience with cold storage.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 163-NFPA 25-2014 [Section No. A.5.3.1.1.2]	Removes cold storage from example of 5 year cycle

Submitter Information Verification

Submitter Full Name: Robert Upson
Organization: National Fire Sprinkler Association
Affilliation: NFSA Engineering and Standards Committee
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jun 30 14:12:10 EDT 2014

Public Input No. 92-NFPA 25-2014 [Section No. 5.3.1.1.2]

5.3.1.1.2 * _
Where sprinklers are subjected to harsh environments, including corrosive atmospheres and corrosive water supplies, on a 5-year basis, either sprinklers shall be replaced or representative sprinkler samples shall be tested. (define corrosive water supplies. Annex refers to "chemically reactive". Neither term is defined. Clarification is needed to distinguish from rust, MIC, MAC, etc.)

Statement of Problem and Substantiation for Public Input

Terms are not defined. Clarification is needed for establishing parameters for enforcement.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 91-NFPA 25-2014 [Section No. A.5.3.1.1.2]	Annex material

Submitter Information Verification

Submitter Full Name: HUGH CASTLES
Organization: ENTERGY RISK ENGINEERING
Street Address:
City:
State:
Zip:
Submittal Date: Fri Apr 11 12:59:34 EDT 2014

Public Input No. 7-NFPA 25-2013 [Section No. 5.3.4.2]

5.3.4.2

Except as permitted by 5.3.4.2.1 and 5.3.4.2.2 , all antifreeze systems shall utilize listed antifreeze solutions.

5.3.4.2.1 *

For systems installed prior to September 30, 2012, listed antifreeze solutions shall not be required until September 30, 2022

where all of the following conditions are met:

(1) * The concentration of the antifreeze solution shall be limited to

~~50 percent glycerine~~

50% glycerin by volume or

~~40 percent~~

40% propylene glycol by volume.

(2) Newly introduced solutions shall be factory premixed antifreeze solutions (chemically pure or United States

~~Pharmacopeia~~

Pharmacopoeia 96.

~~5 percent~~

5%).

(3) * Antifreeze systems with concentrations in excess of

~~30 percent~~

30% propylene glycol and

~~38 percent~~

38% glycerine shall be permitted based upon an approved deterministic risk assessment

~~prepared by a qualified person approved by the authority having jurisdiction.~~

.

5.3.4.2.2

Premixed antifreeze solutions of propylene glycol exceeding

~~30 percent~~

30% concentration by volume shall be permitted for use with ESFR sprinklers where the ESFR sprinklers are listed for such use in a specific application.

Additional Proposed Changes

File Name	Description	Approved
Proposed_TIA_1068_25_.docx	Balloted TIA	

Statement of Problem and Substantiation for Public Input

NOTE: This public input originates from Tentative Interim Amendment 25-11-4 (TIA 1068) issued by the Standards Council on August 9, 2012 and per the NFPA Regs. needs to be reconsidered by the Technical Committee for the next edition of the Document.

The information provided in the Fire Protection Research Foundation report “Antifreeze Solutions Supplied through Spray Sprinklers: Interim Report” illustrates that under certain conditions (pressure, fire size, k-factor, ceiling height, deflector design…etc) a 50% glycerine solution is capable of igniting and causing a dramatic increase in heat release rate with a stronger ignition source. In addition, sprinklers with larger orifices that require lower pressure than typical residential sprinklers and potentially a larger droplet distribution also ignited. After apparently successfully using antifreeze solutions for years, several changes in codes, sprinkler system materials, and industry practices have converged, resulting in an identifiable problem with past usage of antifreeze in sprinkler systems. Once the issue of ignition of antifreeze solutions became an apparent problem, code changes and research to determine appropriate code changes were needed. This TIA applies the research conducted by The Fire Protection Research Foundation to NFPA 25, for the testing, inspection and maintenance of existing antifreeze systems.

This TIA requires the use of Listed Antifreeze Solutions for systems installed after September 30, 2012. Using listed antifreeze solutions will ensure that the solution discharged from a sprinkler system will not ignite or cause a dramatic increase in heat release rate of a fire. The process for developing listed products will also allow for a continued improvement in fire and life safety in environments meeting the NFPA Codes and Standards.

This TIA allows the continued acceptance of currently listed ESFR Antifreeze Systems. The listing process has already shown that, in some cases, it is possible to use current antifreeze solutions to provide the level of protection prescribed by NFPA 13. For this reason, it is proposed to allow the continued use of propylene-glycol solutions in systems and in protection scenarios that have been thoroughly tested to demonstrate such results. There are ESFR systems currently available that have been specifically tested and listed with a specific model of sprinkler and solution delivery method that provide an appropriate level of protection as to be considered “Early Suppression”.

This TIA allows the continued use of propylene glycol up to 30% and glycerine up to 38%. Factory Mutual testing reported in FM Technical Report J.L.0003004619 K-25 Suppression Mode Sprinkler Protection for Areas Subject to Freezing has identified that a concentration up to 30% propylene glycol will not increase the heat release rate. Additionally, the MSDS sheets on propylene glycol identifies that a concentration of 30% does not have a flash point (as would be present with a combustible liquid). Prior testing of the residential sprinklers and antifreeze has shown that 50% glycerine has a similar response to fire as 40% propylene glycol. Based on the concentrations from the residential sprinkler tests, a concentration of 38% glycerine was considered to be equivalent to 30% propylene glycol.

This TIA allows the continued uses of propylene glycol between 30% and 40% and of glycerin between 38% and 50% for the following:
1) Dwelling units with residential or fast response sprinklers, and
2) Light hazard occupancies with quick response sprinklers and a ceiling no higher than 20 ft.
The fuel load for dwellings units does not create a large enough fire before the activation of quick response sprinklers in ceilings up to 20 ft to present a hazard for either residential sprinklers or spray sprinklers as depicted by the reports. The previous research program on residential sprinklers assigned an adequately conservative fire size of 1.4 MW that was based on a ceiling height of 19 ft. The latest report on spray sprinklers shows that with a 1.4 MW fire, there is no difference in outcome between a residential sprinkler and a spray sprinkler (see Figure 2 of Antifreeze Solutions Supplied through Spray Sprinklers – Interim Report). Thus, dwelling units do not present a significant risk when concentrations do not exceed 40% for propylene glycol and 50% for glycerine.

Light Hazard occupancies typically have a fuel load that has a lower rate of heat release than dwellings units but it is not unusual to encounter office settings with similar levels of furnishing. Thus, the higher rate of heat release was used for the evaluation. For ceilings up to 20 ft, the evaluation for dwelling units is applicable and the use of antifreeze at the currently allowed concentrations does not pose a hazard. In order to evaluate the potential risk when the ceilings are greater than 20 ft, DETACT was used to determine the fire size at the time of activation of the sprinkler system. The same variables as used in the Antifreeze Solutions in Home Fire Sprinkler Systems report were applied. Additionally, the report - Performance of Residential Sprinkler Systems with Sloped Ceilings and Beamed Ceilings determined that the same fire growth curve was appropriate for dwelling units. It was

determined that a 3 MW fire occurs with a 33 ft ceiling It is not well understood how the antifreeze discharge will react at ceiling heights above 20 ft nor at what size fire significant involvement of the antifreeze discharge could occur at such ceiling heights. Thus, the ceiling height for light hazard occupancies is limited to a maximum of 20 ft.

In many cases, replacing existing antifreeze systems is a significant financial and /or operational burden for the owner. It is appropriate to provide time to plan and budget for the antifreeze systems identified above that have a minimal life safety and property loss risk. It is recognized that some existing antifreeze systems that are not readily grouped and identified above do not pose a risk, however, the variables affecting the hazard requires specific analysis. The results obtained from the Antifreeze Systems in Home Fire Sprinkler Systems report clearly indicated that a 1.4 MW fire does not present a threat for 40% propylene glycol and 50% glycerine. The results from the Antifreeze Solutions Supplied through Spray Sprinklers – Interim Report clearly show that a larger fire (3.0 MW) when combined with a 20 ft ceiling can create a problem. This presented the only two failures. However, significant increases in heat release rate were noted with a 3 MW fire and an 8-ft ceiling with smaller orifice sprinklers.

This TIA allows continued uses of propylene glycol between 30% and 40% and of glycerin between 38% and 50% for conditions not identified above, only when they are approved based upon a deterministic risk assessment.

Emergency Nature: The latest testing from The Fire Protection Research Foundation titled Antifreeze Solutions Supplied through Spray Sprinklers Interim Report (dated February 2012) shows that anti-freeze concentrations currently allowed in new NFPA 13 and 13R sprinkler systems, that are inspected, tested and maintained in accordance with NFPA 25, may support combustion and increase the size of the fire. This is a safety issue that requires changes in the standard.

Submitter Information Verification

Submitter Full Name: TC on INM-AAA
Organization: TC on Inspection, Testing, and Maintenance of Water-Based Systems
Street Address:
City:
State:
Zip:
Submittal Date: Wed Oct 30 09:48:08 EDT 2013

NFPA® 25-2011
Standard for the Inspection Testing and Maintenance of Water-Based Fire Protection Systems
TIA Log No.: 1068
Reference: 5.3.4.2, A.5.3.4.2, Table A.5.3.4.2, A.5.3.4.2.1, and A.5.3.4.2.1(3**)**
Comment Closing Date: July 2, 2012
Submitter: Roland Huggins, American Fire Sprinkler Association, Inc.

1. Delete 5.3.4.2 and subsections and add a new 5.3.4.2 and 5.3.4.2.1 as follows:

~~**5.3.4.2*** Antifreeze solutions shall comply with one of the following:~~
~~(1) The concentration of a glycerin solution measured in an existing system shall be limited to 50% by volume.~~
~~(2) Newly introduced solutions shall be factory premixed antifr**eeze solutions of glycerin (chemically pure or United States Pharmacopoeia 96.5%) at a maximum concentration of** 48% by volume.~~
~~(3) The concentration of a propylene glycol solution measured in an existing system shall be limited to 40% by volume.~~
~~(4) Newly introduced solutions shall be factory premixed antifreeze solutions of propylene glycol (chemically pure or United States Pharmacopoeia 96.5%) at a maximum concentration of 38% by volume.~~
~~(5) Other solutions listed specifically for use in fire protection systems.~~

5.3.4.2 Except as permitted by 5.3.4.2.1 and 5.3.4.2.2, all antifreeze systems shall utilize listed antifreeze solutions.

5.3.4.2.1* For systems installed prior to September 30, 2012, listed antifreeze solutions shall not be required until September 30, 2022 where all of the following conditions are met:

(1)* The concentration of the antifreeze solution shall be limited to 50% glycerin by volume or 40% propylene glycol by volume.

(2) Newly introduced solutions shall be factory premixed antifreeze solutions (chemically pure or United States Pharmacopoeia 96.5%).

(3)*Antifreeze systems with concentrations in excess of 30% propylene glycol and 38% glycerine shall be permitted based upon an approved deterministic risk assessment.

5.3.4.2.2 Premixed antifreeze solutions of propylene glycol exceeding 30% concentration by volume shall be permitted for use with ESFR sprinklers where the ESFR sprinklers are listed for such use in a specific application.

2. Renumber A.5.3.4.2 and Table A.5.3.4.2 as A.5.3.4.2.1(1) and Table A.5.3.4.2.1(1).

3. Add new annex section to read as follows:

A.5.3.4.2.1 It is assumed that all antifreeze systems installed after September 30, 2012 will meet the minimum requirements of NFPA 13, 2013 Edition.

A.5.3.4.2.1(3) Propylene glycol and glycerin antifreeze solutions discharged from sprinklers have the potential to ignite under certain conditions. Research testing has indicated that several variables may influence the potential for large-scale ignition of the antifreeze solution discharged from a sprinkler. These variables include, but are not limited to, the concentration of antifreeze solution, sprinkler discharge characteristics, inlet pressure at the sprinkler, ceiling height, and size of fire at the time of sprinkler discharge. All relevant data and information should be carefully reviewed and considered in the deterministic risk assessment.

In addition to the variables identified above, the deterministic risk assessment should include occupancy, quantity of solution, impact on life safety, and potential increase in heat release rate.

The following is a list of research reports that have been issued by the Fire Protection Research Foundation related to the use of antifreeze in sprinkler systems that should be considered in the development of the deterministic risk assessment:

1. *Antifreeze Systems in Home Fire Sprinkler Systems – Literature Review and Research Plan*, Fire Protection Research Foundation, June 2010.
2. *Antifreeze Systems in Home Fire Sprinkler Systems – Phase II Final Report*, Fire Protection Research Foundation, December 2010.
3. *Antifreeze Solutions Supplied through Spray Sprinklers – Interim Report*, Fire Protection Research Foundation, February 2012.

The following tables provide an overview of the testing

Topic	Information
Scope of Sprinklers Tested	The following sprinklers were used during the residential sprinkler research program described in the report dated December 2010: • Residential pendent style having nominal K-factors of 3.1, 4.9 and 7.4 gpm/psi$^{1/2}$ • Residential concealed pendent style having a nominal K-factor of 4.9 gpm/psi$^{1/2}$ • Residential sidewall style having nominal K-factors of 4.2 and 5.5 gpm/psi$^{1/2}$ The following sprinklers were used during the spray sprinkler research program described in the report dated February 2012: • Residential pendent style having a nominal K-factor of 3.1 gpm/psi$^{1/2}$ • Standard spray pendent style having nominal K-factors of 2.8, 4.2, 5.6 and 8.0 gpm/psi$^{1/2}$ • Standard spray concealed pendent style having a nominal K-factor of 5.6 gpm/psi$^{1/2}$ • Standard spray upright style having a nominal K-factor of 5.6 gpm/psi$^{1/2}$ • Standard spray extended coverage pendent style having a nominal K-factor of 5.6 gpm/psi$^{1/2}$
Antifreeze Solution Concentration	**<50% Glycerine and <40% Propylene Glycol Antifreeze Solutions**—Solutions were not tested. **50% Glycerine and 40% Propylene Glycol Antifreeze Solutions**—Large scale ignition of the sprinkler spray did not occur in tests with sprinkler discharge onto a fire having a nominal Heat Release Rate (HRR) of 1.4 MW. Large scale ignition of the sprinkler spray occurred in multiple tests with sprinkler discharge onto a fire having a nominal HRR of 3.0 MW. **55% Glycerine and 45% Propylene Glycol Antifreeze Solutions** – Large scale ignition of the sprinkler spray occurred in tests with sprinkler discharge onto a fire having a nominal HRR of 1.4 MW. **>55% Glycerine and >45% Propylene Glycol Antifreeze Solutions --** Large scale ignition of the sprinkler spray occurred in tests with sprinkler discharge onto a fire having a HRR of less than 500 kW. **70% Glycerine and 60% Propylene Glycol Antifreeze Solutions –** Maximum antifreeze solution concentrations tested.
Sprinkler Inlet Pressure	Large scale ignition of the sprinkler discharge spray was not observed when the sprinkler inlet pressure was 50 psi or less for tests using 50% glycerine or 40% propylene glycol.
Ceiling Height	When discharging 50% glycerine and 40% propylene glycol antifreeze solutions onto fires having a HRR of 1.4 MW, no large scale ignition of the sprinkler spray was observed with ceiling heights up to 20 ft. When discharging 50% glycerine and 40% propylene glycol antifreeze solutions onto fires having a HRR of 3.0 MW, large scale ignition of the sprinkler spray was observed at a ceiling height of 20 ft.
Fire Control	The test results described in the test reports December 2010 and February 2012 indicated that discharging glycerine and propylene glycol antifreeze solutions onto a fire can temporarily increase the fire size until water is discharged. As a part of the residential sprinkler research described in report dated December 2010, tests were conducted to evaluate the effectiveness of residential sprinklers to control fires involving furniture and simulated furniture. The results of these tests indicated that 50% glycerine and 40% propylene glycol antifreeze solutions demonstrated the ability to control the furniture type fires in a manner similar to water. For standard spray type sprinklers, no tests were conducted to investigate the ability of these sprinklers to control the types and sizes of fires that these sprinklers are intended to protect.

Submitter's Substantiation: The information provided in the Fire Protection Research Foundation report "Antifreeze Solutions Supplied through Spray Sprinklers: Interim Report" illustrates that under certain conditions (pressure, fire size, k-factor, ceiling height, deflector design…etc) a 50% glycerine solution is capable of igniting and causing a dramatic increase in heat release rate-with a stronger ignition source. In addition, sprinklers with larger orifices that require lower pressure than typical residential sprinklers and potentially a larger droplet distribution also ignited.
After apparently successfully using antifreeze solutions for years, several changes in codes, sprinkler system materials, and industry practices have converged, resulting in an identifiable problem with past usage of antifreeze in sprinkler systems. Once the issue of ignition of antifreeze solutions became an apparent problem, code changes and research to

determine appropriate code changes were needed. This TIA applies the research conducted by The Fire Protection Research Foundation to NFPA 25, for the testing, inspection and maintenance of existing antifreeze systems.

This TIA requires the use of Listed Antifreeze Solutions for systems installed after September 30, 2012. Using listed antifreeze solutions will ensure that the solution discharged from a sprinkler system will not ignite or cause a dramatic increase in heat release rate of a fire. The process for developing listed products will also allow for a continued improvement in fire and life safety in environments meeting the NFPA Codes and Standards.

This TIA allows the continued acceptance of currently listed ESFR Antifreeze Systems. The listing process has already shown that, in some cases, it is possible to use current antifreeze solutions to provide the level of protection prescribed by NFPA 13. For this reason, it is proposed to allow the continued use of propylene-glycol solutions in systems and in protection scenarios that have been thoroughly tested to demonstrate such results. There are ESFR systems currently available that have been specifically tested and listed with a specific model of sprinkler and solution delivery method that provide an appropriate level of protection as to be considered "Early Suppression".

This TIA allows the continued use of propylene glycol up to 30% and glycerine up to 38%. Factory Mutual testing reported in *FM Technical Report J.L.0003004619 K-25 Suppression Mode Sprinkler Protection for Areas Subject to Freezing* has identified that a concentration up to 30% propylene glycol will not increase the heat release rate. Additionally, the MSDS sheets on propylene glycol identifies that a concentration of 30% does not have a flash point (as would be present with a combustible liquid). Prior testing of the residential sprinklers and antifreeze has shown that 50% glycerine has a similar response to fire as 40% propylene glycol. Based on the concentrations from the residential sprinkler tests, a concentration of 38% glycerine was considered to be equivalent to 30% propylene glycol.

This TIA allows the continued uses of propylene glycol between 30% and 40% and of glycerin between 38% and 50% for the following:

1) Dwelling units with residential or fast response sprinklers, and

2) Light hazard occupancies with quick response sprinklers and a ceiling no higher than 20 ft.

The fuel load for dwellings units does not create a large enough fire before the activation of quick response sprinklers in ceilings up to 20 ft to present a hazard for either residential sprinklers or spray sprinklers as depicted by the reports. The previous research program on residential sprinklers assigned an adequately conservative fire size of 1.4 MW that was based on a ceiling height of 19 ft. The latest report on spray sprinklers shows that with a 1.4 MW fire, there is no difference in outcome between a residential sprinkler and a spray sprinkler (see Figure 2 of Antifreeze Solutions Supplied through Spray Sprinklers – Interim Report). Thus, dwelling units do not present a significant risk when concentrations do not exceed 40% for propylene glycol and 50% for glycerine.

Light Hazard occupancies typically have a fuel load that has a lower rate of heat release than dwellings units but it is not unusual to encounter office settings with similar levels of furnishing. Thus, the higher rate of heat release was used for the evaluation. For ceilings up to 20 ft, the evaluation for dwelling units is applicable and the use of antifreeze at the currently allowed concentrations does not pose a hazard. In order to evaluate the potential risk when the ceilings are greater than 20 ft, DETACT was used to determine the fire size at the time of activation of the sprinkler system. The same variables as used in the Antifreeze Solutions in Home Fire Sprinkler Systems report were applied. Additionally, the report - Performance of Residential Sprinkler Systems with Sloped Ceilings and Beamed Ceilings determined that the same fire growth curve was appropriate for dwelling units. It was determined that a 3 MW fire occurs with a 33 ft ceiling It is not well understood how the antifreeze discharge will react at ceiling heights above 20 ft nor at what size fire significant involvement of the antifreeze discharge could occur at such ceiling heights. Thus, the ceiling height for light hazard occupancies is limited to a maximum of 20 ft.

In many cases, replacing existing antifreeze systems is a significant financial and /or operational burden for the owner. It is appropriate to provide time to plan and budget for the antifreeze systems identified above that have a minimal life safety and property loss risk. It is recognized that some existing antifreeze systems that are not readily grouped and identified above do not pose a risk, however, the variables affecting the hazard requires specific analysis. The results obtained from the Antifreeze Systems in Home Fire Sprinkler Systems report clearly indicated that a 1.4 MW fire does not present a threat for 40% propylene glycol and 50% glycerine. The results from the Antifreeze Solutions Supplied through Spray Sprinklers – Interim Report clearly show that a larger fire (3.0 MW) when combined with a 20 ft ceiling

can create a problem. This presented the only two failures. However, significant increases in heat release rate were noted with a 3 MW fire and an 8-ft ceiling with smaller orifice sprinklers.

This TIA allows continued uses of propylene glycol between 30% and 40% and of glycerin between 38% and 50% for conditions not identified above, only when they are approved based upon a deterministic risk assessment.

Emergency Nature: The latest testing from The Fire Protection Research Foundation titled *Antifreeze Solutions Supplied through Spray Sprinklers Interim Report* (dated February 2012) shows that anti-freeze concentrations currently allowed in new NFPA 13 and 13R sprinkler systems, that are inspected, tested and maintained in accordance with NFPA 25, may support combustion and increase the size of the fire. This is a safety issue that requires changes in the standard.

Public Input No. 26-NFPA 25-2013 [Section No. 5.4.1.8]

5.4.1.8 Protective Coverings.

5.4.1.8.1 * _

Sprinklers protecting spray areas and mixing rooms in resin application areas installed with protective coverings shall continue to be protected against overspray residue so that they will operate in the event of fire.

5.4.1.8.2

Sprinklers installed as described in 5.4.1.8.1 shall be protected using cellophane bags having a thickness of 0.003 in. (0.076 mm) or less or thin paper bags.

5.4.1.8.3

Coverings shall be replaced periodically so that heavy deposits of residue do not accumulate.

5.4.1.8.4

Protective coverings shall be provided for sprinklers that are directly attached to piping that will be painted. Coverings shall be in accordance with 5.4.1.8.2 and shall be removed promptly after the painting of the piping is completed.

Statement of Problem and Substantiation for Public Input

NFPA 13 and NFPA 25 do not provide any direction for protection of sprinklers when they pipe they are attached to is to be painted. Additionally, neither document prohibits the use of tape, duct tape, tin foil, or other materials that can either damage the fusible element of the sprinkler or prevent the sprinkler from operating in a fire condition. A similar paragraph will be submitted to NFPA 13. Sprinklers are often protected by tape, duct tape, and tin-foil when the roof, ceiling, and / or sprinkler piping is painted or repainted. These two standards need to provide specific direction to contractors regarding how to protect the sprinklers from paint as well as what is not acceptable for the protection of sprinklers from paint. Currently NFPA 25 provides direction for sprinklers located in spray coating and resin areas only.

Submitter Information Verification

Submitter Full Name: SCOTT FUTRELL
Organization: FUTRELL FIRE CONSLT
Affilliation: None
Street Address:
City:
State:
Zip:
Submittal Date: Tue Dec 03 09:07:51 EST 2013

Public Input No. 252-NFPA 25-2014 [Section No. 5.4.2.2]

5.4.2.2
Refrigerated spaces or other areas within the building interior where ~~temperatures~~ the sprinkler system equipment is subject to freezing and temperaturesare are maintained at or below 40°F (4.0°C) shall not be permitted to be left wet.

Statement of Problem and Substantiation for Public Input

NFPA 13 allows the system to be wet if not subject to freezing. Many cooler boxes and similar locations are properly protected below 40 degrees Fahrenheit with wet systems. NFPA 25 should recognize that as long as the system will not freeze, maintaining 40 degrees Fahrenheit or above is not required.

Submitter Information Verification

Submitter Full Name: John Denhardt
Organization: Strickland Fire Protection, Inc
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jul 07 09:54:56 EDT 2014

Public Input No. 275-NFPA 25-2014 [Section No. 5.4.2.4]

5.4.2.4
Compressors used in conjunction with dry pipe sprinkler systems shall be inspected, tested, and maintained in accordance with Section 13.8 and the manufacturer's instructions.

Additional Proposed Changes

File Name	Description	Approved
25_Victor_PI_xxx_-_Air_Compressor_Changes_for_Dry_Systems.pdf	PI Form	

Statement of Problem and Substantiation for Public Input

NFPA 25 lacks sufficient guidance and requirements on how to maintain air compressors used for dry and preaction systems, especially those dedicated for fire protection systems. The new proposed text refers to a new section for ITM of air compressors and also keeps the reference to the manufacturer's instructions.

Submitter Information Verification

Submitter Full Name: Terry Victor
Organization: SimplexGrinnell
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jul 10 07:24:19 EDT 2014

Public Input No. 170-NFPA 25-2014 [Section No. 5.5.1]

5.5.1

Whenever a component in a sprinkler system is adjusted, repaired, reconditioned, or replaced, the actions required in Table 5.5.1 shall be performed.

Table 5.5.1 Summary of Component Replacement Action Requirements

Component	Adjust	Repair/ Recondition	Replace	Required Action
Water Delivery Components				
Pipe and fittings affecting less than 20 sprinklers	X	X	X	Inspect for leaks at system working pressure
Pipe and fittings affecting more than 20 sprinklers where the new work cannot be isolated	X	X	X	Inspect for leaks at system working pressure
Pipe and fittings affecting more than 20 sprinklers where the new work can be isolated	X	X	X	Hydrostatic test in conformance with NFPA 13, *Standard for the Installation of Sprinkler Systems* . Make sure that existing pipe, fittings, and valves are not subjected to 200 psi.
Sprinklers, ~~less than 20~~ regardless of number	X	X		Inspect for leaks at system working pressure
~~Sprinklers, more than 20~~	~~X~~	~~X~~		~~Hydrostatic test in conformance with NFPA 13~~
Fire department connections	X	X	X	See Chapter 13
Antifreeze solution	X		X	Inspect freezing point of solution
				Inspect for leaks at system working pressure
Alarm and Supervisory Components				
Vane-type waterflow	X	X	X	Operational test using inspector's test connection
Pressure switch–type waterflow	X	X	X	Operational test using the inspector's test connection or alarm bypass test valve
Water motor gong	X	X	X	Operational test using inspector's test connection
High and low air pressure switch	X	X	X	Operational test of high and low settings
Valve supervisory signal initiating device	X	X	X	Test for conformance with NFPA 13 and/or *NFPA 72* , *National Fire Alarm and Signaling Code*
Detection system (for deluge or preaction system)	X	X	X	Operational test for conformance with NFPA 13 and/or *NFPA 72*
Status-Indicating Components				
Gauges			X	Verify at 0 bar (0 psi) and system working pressure
Testing and Maintenance Components				
Air compressor	X	X	X	Operational test for conformance with NFPA 13
Automatic air maintenance device	X	X	X	Operational test for conformance with NFPA 13
Main drain	X	X	X	Main drain test
Auxiliary drains	X	X	X	Inspect for leaks at system working pressure; main drain test
Inspector's test connection	X	X	X	Inspect for leaks at system working pressure; main drain test
Structural Components				
Hanger/seismic bracing	X	X	X	Inspect for conformance with NFPA 13
Pipe stands	X	X	X	Inspect for conformance with NFPA 13
Informational Components				
Identification signs	X	X	X	Inspect for conformance with NFPA 13 and this standard
Hydraulic design information sign	X	X	X	Inspect for conformance with NFPA 13 and this standard
General information sign	X	X	X	Inspect for conformance with this standard

Additional Proposed Changes

File Name	Description	Approved
Table5.5.1revised.jpg	View of proposed revision to part of Table 5.5.1	

Statement of Problem and Substantiation for Public Input

This proposal brings Table 5.5.1 into harmony with the requirements of NFPA 13 (2103)

Submitter Information Verification

Submitter Full Name: Robert Upson
Organization: National Fire Sprinkler Association
Affilliation: NFSA Engineering and Standards Committee
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jul 01 13:46:15 EDT 2014

Component	Adjust	Repair/ Recondition	Replace	Required Action
Water Delivery Components				
Pipe and fittings affecting less than 20 sprinklers	X	X	X	Inspect for leaks at system working pressure
Pipe and fittings affecting more than 20 sprinklers where the new work cannot be isolated	X	X	X	Inspect for leaks at system working pressure
Pipe and fittings affecting more than 20 sprinklers where the new work can be isolated	X	X	X	Hydrostatic test in conformance with NFPA 13, *Standard for the Installation of Sprinkler Systems*. Make sure that existing pipe, fittings, and valves are not subjected to 200 psi.
Sprinklers, regardless of number	X		X	Inspect for leaks at system working pressure
Fire department connections	X	X	X	See Chapter 13
Antifreeze solution	X		X	Inspect freezing point of solution
				Inspect for leaks at system working pressure

Public Input No. 116-NFPA 25-2014 [Section No. 6.1.1.2]

6.1.1.2

Table 6.1.1.2 shall be used to determine the minimum required frequencies for inspection, testing, and maintenance.

Table 6.1.1.2 Summary of Standpipe and Hose Systems Inspection, Testing, and Maintenance

Item	Frequency	Reference
Inspection		
Control valves		Table 13.1.1.2
Pressure-regulating devices		Table 13.1.1.2
Piping	Annually	6.2.1
Hose connections		Table 13.1.1.2]
Cabinet	Annually	
~~NFPA 1962~~		
6.2.1		
Gauges	Weekly/quarterly	6.2.2
Hose	Annually	NFPA 1962
Hose storage device	Annually	
~~NFPA 1962~~		
6.2.1		
Hose nozzle	Annually and after each use	NFPA 1962
Hydraulic design information sign	Annually	6.2.3
Hose valves		Table 13.1.1.2
Hose connection		
~~Table 13.1~~		
Annually	6.2 .1	
~~.2~~		
Test		
Waterflow alarm devices		Table 13.1.1.2
Valve supervisory devices		Table 13.1.1.2
Supervisory signal devices (except valve supervisory switches)		Table 13.1.1.2
Hose		
~~storage device Hose~~		
~~Annually NFPA 1962~~		
5 years/3 years	NFPA 1962	
Pressure control valve		Table 13.1.1.2
Pressure-reducing valve		Table 13.1.1.2
Hydrostatic test	5 years	6.3.2
Flow test	5 years	6.3.1
Main drain test		Table 13.1.1.2
Hose valves		Table 13.1.1.2
Hose connections		
~~Table 13.1~~		
Annually	6.2 .1	
~~.2~~		
Valve status test		13.3.1.2.1
Maintenance		
Hose connections	Annually	Table 6.1.2
Valves (all types)	Annually/as needed	Table 13.1.1.2
Hose valves		Table 13.1.1.2

Additional Proposed Changes

File Name	Description	Approved
LGK_NFPA_25-2014_PI_Table_6-1-1-2.pdf	PI Form	

Statement of Problem and Substantiation for Public Input

NFPA 1962 does not speak to the inspection or testing of standpipe system hose cabinets or hose storage devices such as pin racks or reels. Therefore, inspections for these components should fall under the requirement of Section 6.2.1 and since there are no tests prescribed for these components elsewhere, the reference to testing them in Table 6.1.1.2 should be deleted.

Regarding Hose Connections, Chapter 13 only deals with the hose connections on pressure reducing valves, so Chapter 6 needs to address all other hose connections.

Submitter Information Verification

Submitter Full Name: Larry Keeping

Organization: Professional Loss Control

Street Address:

City:
State:
Zip:
Submittal Date: Thu Jun 05 12:59:31 EDT 2014

Public Input No. 185-NFPA 25-2014 [Section No. 6.1.1.2]

6.1.1.2 *

Table 6.1.1.2 shall be used to determine the minimum required frequencies for inspection, testing, and maintenance.

Table 6.1.1.2 Summary of Standpipe and Hose Systems Inspection, Testing, and Maintenance

Item	Frequency	Reference
Inspection		
Control valves		Table 13.1.1.2
Pressure-regulating devices		Table 13.1.1.2
Piping	Annually	6.2.1
Hose connections		Table 13.1.1.2]
Cabinet	Annually	NFPA 1962
Gauges	Weekly/quarterly	6.2.2
Hose	Annually	NFPA 1962
Hose storage device	Annually	NFPA 1962
Hose nozzle	Annually and after each use	NFPA 1962
Hydraulic design information sign	Annually	6.2.3
Hose valves		Table 13.1.1.2
Hose connection		Table 13.1.1.2
Test		
Waterflow alarm devices		Table 13.1.1.2
Valve supervisory devices		Table 13.1.1.2
Supervisory signal devices (except valve supervisory switches)		Table 13.1.1.2
Hose storage device	Annually	NFPA 1962
Hose	5 years/3 years	NFPA 1962
Pressure control valve		Table 13.1.1.2
Pressure-reducing valve		Table 13.1.1.2
Hydrostatic test	5 years	6.3.2
Flow test	5 years	6.3.1
Main drain test		Table 13.1.1.2
Hose valves		Table 13.1.1.2
Hose connections		Table 13.1.1.2
Valve status test		13.3.1.2.1
Maintenance		
Hose connections	Annually	Table 6.1.2
Valves (all types)	Annually/as needed	Table 13.1.1.2
Hose valves		Table 13.1.1.2

Statement of Problem and Substantiation for Public Input

Links to proposed documentary/deficiency requirement for long term ITM intervals.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 180-NFPA 25-2014 [New Section after 4.3.5]	

Submitter Information Verification

Submitter Full Name: Robert Upson
Organization: National Fire Sprinkler Association
Affilliation: NFSA Engineering and Standards Committee
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jul 02 13:03:54 EDT 2014

Public Input No. 233-NFPA 25-2014 [Section No. 6.1.4]

6.1.4
Valves ~~and~~ , valve components, trim, alarm devices, and fire department connections shall be inspected, tested, and maintained in accordance with Chapter 13.

Statement of Problem and Substantiation for Public Input

This proposal is intended to direct the used to Chapter 13 for alarm devices.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 225-NFPA 25-2014 [Section No. 13.2.6]	

Submitter Information Verification

Submitter Full Name: JAMES M FELD
Organization: University of California
Street Address:
City:
State:
Zip:
Submittal Date: Fri Jul 04 14:10:56 EDT 2014

Public Input No. 261-NFPA 25-2014 [Section No. 6.3.1]

6.3.1 Flow Tests.

6.3.1.1 *

A flow test shall be conducted every 5 years on all Class I ~~and~~ , Class II and Class III standpipe systems to verify that the required flow and pressure are available at the hydraulically most remote hose valve outlet(s) while flowing the standpipe system demand.

6.3.1.1.1

Where a flow test of the hydraulically most remote outlet(s) is not practical, the authority having jurisdiction shall be consulted for the appropriate location for the test.

6.3.1.2 *

~~The~~ Class I and Class III standpipe system demand shall include 500 gpm (1892 L/min) for the ~~first~~ most remote standpipe and 250 gpm (946 L/min) for each additional standpipe until the total system demand is simultaneously flowing.

6.3.1.2.1 *

The 250 gpm (946 L/min) required from each additional Class I and Class III standpipe shall be allowed to be flowed from the most convenient hose valve on that standpipe.

6.3.1.2.2 *

Where the 250 gpm (946 L/min) cannot be flowed from each additional Class I and Class III standpipe, the authority having jurisdiction shall determine where the additional flow can be taken.

6.3.1.3

Class II standpipe system demand shall include 100 gpm (379 L/min) for the most remote standpipe connection.

6.3.1.4

The standpipe system demand shall be based on the design criteria in effect at the time of the installation.

6.3.1. ~~3~~ 4 .1

Where the standpipe system demand cannot be determined, the authority having jurisdiction shall determine the standpipe system demand.

6.3.1. ~~3~~ 4 .2

The actual test method(s) and performance criteria shall be discussed in advance with the authority having jurisdiction.

6.3.1. ~~4~~ 5

Standpipes, sprinkler connections to standpipes, or hose stations equipped with pressure-reducing valves or pressure-regulating valves shall have these valves inspected, tested, and maintained in accordance with the requirements of Chapter 13.

6.3.1. ~~5~~ 6

A main drain test shall be performed on all standpipe systems with automatic water supplies in accordance with the requirements of Chapter 13.

6.3.1. ~~5~~ 6 .1

The test shall be performed at the low point drain for each standpipe or the main drain test connection where the supply main enters the building (when provided).

6.3.1. ~~5~~ 6 .2

Pressure gauges shall be provided for the test and shall be maintained in accordance with 5.3.2.

Statement of Problem and Substantiation for Public Input

During the previous cycle changes made to the testing for standpipe systems resulted in the elimination of testing for Class II standpipe systems. The proposed change reinstates this requirement.

Submitter Information Verification

Submitter Full Name: Tracey Bellamy
Organization: Telgian Corporation
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jul 07 14:22:13 EDT 2014

Public Input No. 155-NFPA 25-2014 [Section No. 6.3.1.1 [Excluding any Sub-Sections]]

A flow test shall be conducted every 5 years on all automatic Class I and Class III standpipe systems to verify that the required flow and pressure are available at the hydraulically most remote hose valve outlet(s) while flowing the standpipe system demand.

Statement of Problem and Substantiation for Public Input

This P.I. seeks to eliminate the 5-year flow tests for manual standpipes. A manual standpipe does not have an automatic water supply and a flow test would require a fire department pumper truck or equivalent. As the pressure and flow requirement of the a manual standpipe was verified in the design phase of the system and is dependent on the Fire Department supplying the required water supply, a flow test of manual standpipes is of questionable value but of considerable expense.

Submitter Information Verification

Submitter Full Name: Roland Asp
Organization: National Fire Sprinkler Association
Affilliation: NFSA E&S Committee
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jun 30 10:16:02 EDT 2014

Public Input No. 242-NFPA 25-2014 [Section No. 6.3.1.1 [Excluding any Sub-Sections]]

A flow test shall be conducted every 5 years on all ~~Class I and Class III~~ standpipe systems to verify that the required flow and pressure are available at the hydraulically most remote hose valve outlet(s) while flowing the standpipe system demand.

Statement of Problem and Substantiation for Public Input

NFPA 1 (2012) Section 10.4.3 requires "Existing life safety features obvious to the public, if not required by this Code, shall be either maintained or removed." The Annex section to this section includes sprinkler systems and standpipe systems. International Fire Code (2012) Section 901.6 requires "Nonrequired fire protection systems and equipment shall be inspected tested, and maintained or removed." Therefore, Class II standpipe systems must be included in the ITM requirements of NFPA 25. Since the two major fire codes in this country require ITM for all standpipe systems, NFPA 25 needs to provide the proper ITM requirements for their successful use.

Further, since Class III standpipe systems include Class II systems, NFPA 25 should also require ITM for stand-alone Class II standpipe systems. Otherwise, why would a Class II standpipe that is a part of a Class III system be treated differently from a stand-alone Class II system? They will both be used by the building occupants, whether or not they are trained in the use of a standpipe system.

Submitter Information Verification

Submitter Full Name: JAMES M FELD
Organization: University of California
Street Address:
City:
State:
Zip:
Submittal Date: Sun Jul 06 11:22:38 EDT 2014

Public Input No. 74-NFPA 25-2014 [Section No. 6.3.2.1 [Excluding any Sub-Sections]]

Hydrostatic tests of not less than 200 psi (13.8 bar) pressure for 2 hours, or at 50 psi (3.4 bar) in excess of the maximum pressure, where maximum pressure is in excess of 150 psi (10.3 bar), shall be conducted every 5 years on ~~manual standpipe systems and semiautomatic dry~~ dry and wet standpipe systems, including piping in the fire department connection.

Statement of Problem and Substantiation for Public Input

Dry standpipes are not required to be hydro tested every five years. Dry standpipes are more susceptible to corrosion due to air and moisture which could cause a pre mature failure under pressure.

Submitter Information Verification

Submitter Full Name: Phil Topor
Organization: Merrillville Fire Department
Street Address:
City:
State:
Zip:
Submittal Date: Thu Feb 27 20:58:17 EST 2014

Public Input No. 186-NFPA 25-2014 [Section No. 7.1.1.2]

7.1.1.2 *

Table 7.1.1.2 shall be used to determine the minimum required frequencies for inspection, testing, and maintenance.

Table 7.1.1.2 Summary of Private Fire Service Main Inspection, Testing, and Maintenance

Item	Frequency	Reference
Inspection		
Hose houses	Quarterly	7.2.2.7
Hydrants (dry barrel and wall)	Annually and after each operation	7.2.2.4
Monitor nozzles	Semiannually	7.2.2.6
Hydrants (wet barrel)	Annually and after each operation	7.2.2.5
Mainline strainers	Annually and after each significant flow	7.2.2.3
Piping (exposed)	Annually	7.2.2.1
Piping (underground)	See 7.2.2.2	7.2.2.2
Test		
Monitor nozzles	Flow, annually (range and operation)	7.3.3
Hydrants	Flow, annually	7.3.2
Piping (exposed and underground) (flow test)	5 years	7.3.1
Valve status test		13.3.1.2.1
Maintenance		
Mainline strainers	Annually and after each operation	7.2.2.3
Hose houses	Annually	7.2.2.7
Hydrants	Annually	7.4.2
Monitor nozzles	Annually	7.4.3

Statement of Problem and Substantiation for Public Input

Links to proposed documentary/deficiency requirement for long term ITM intervals.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 180-NFPA 25-2014 [New Section after 4.3.5]	

Submitter Information Verification

Submitter Full Name: Robert Upson
Organization: National Fire Sprinkler Association
Affilliation: NFSA Engineering and Standards Committee
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jul 02 13:05:12 EDT 2014

Public Input No. 29-NFPA 25-2013 [Section No. 7.2.2.4]

7.2.2.4 Dry Barrel and Wall Hydrants.

Dry barrel and wall hydrants shall be inspected annually and after each operation, with the necessary corrective action taken as specified in Table 7.2.2.4.

Table 7.2.2.4 Dry Barrel and Wall Hydrants

Condition	Corrective Action
Inaccessible	Make accessible
Barrel contains water or ice (presence of water or ice could indicate a faulty drain, a leaky hydrant valve, or high groundwater table)	Repair and drain; for high groundwater it could be necessary to plug the drain and pump out the barrel after each use
Improper drainage from barrel	Repair drain
Leaks in outlets or at top of hydrant	Repair or replace gaskets, packing, or parts as necessary
Cracks in hydrant barrel	Repair or replace
Tightness of outlet caps	Lubricate if necessary; tighten if necessary
Worn outlet threads	Repair or replace
Worn hydrant operating nut	Repair or replace
Availability of operating wrench	Make sure wrench is available
Exterior corrosion	Clean or replace and coat with corrosion protection

Statement of Problem and Substantiation for Public Input

The exterior of hydrants are subject to rust/corrosion and should be treated for such conditions. If left untreated, this condition can cause the failure of the bonnet bolts and the breakaway bolts. In addition, visibility of the hydrant can be impeded when it is subject to rust and if hydrants are color coded by flow, the ability to determine the flow will also be impeded.

Submitter Information Verification

Submitter Full Name: Anthony Apfelbeck
Organization: Altamonte Springs Building/Fire Safety Division
Street Address:
City:
State:
Zip:
Submittal Date: Sun Dec 22 17:34:04 EST 2013

Public Input No. 30-NFPA 25-2013 [Section No. 7.2.2.5]

7.2.2.5 Wet Barrel Hydrants.

Wet barrel hydrants shall be inspected annually and after each operation, with the necessary corrective action taken as specified in Table 7.2.2.5.

Table 7.2.2.5 Wet Barrel Hydrants

Condition	Corrective Action
Inaccessible	Make accessible
Leaks in outlets or at top of hydrant	Repair or replace gaskets, packing, or parts as necessary
Cracks in hydrant barrel	Repair or replace
Tightness of outlet caps	Lubricate if necessary; tighten if necessary
Worn outlet threads	Repair or replace
Worn hydrant operating nut	Repair or replace
Availability of operating wrench	Make sure wrench is available
Exterior corrosion	Clean or replace and coat with corrosion protection

Statement of Problem and Substantiation for Public Input

The exterior of hydrants are subject to rust/corrosion and should be treated for such conditions. If left untreated, this condition can cause the failure of the bonnet bolts and the breakaway bolts. In addition, visibility of the hydrant can be impeded when it is subject to rust and if hydrants are color coded by flow, the ability to determine the flow will also be impeded.

Submitter Information Verification

Submitter Full Name: Anthony Apfelbeck
Organization: Altamonte Springs Building/Fire Safety Division
Street Address:
City:
State:
Zip:
Submittal Date: Sun Dec 22 17:44:25 EST 2013

Public Input No. 243-NFPA 25-2014 [Section No. 7.3.1.1]

7.3. ~~1.1~~ 3
Any flow test results that indicate deterioration of available waterflow and pressure shall be investigated to the complete satisfaction of the authority having jurisdiction to ensure that the required flow and pressure are available for fire protection.

Statement of Problem and Substantiation for Public Input

This proposal intended to have this section apply to both the tests required by Sections 7.3.1 and the new 7.3.2 (which is a revision of 7.3.1.2.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 244-NFPA 25-2014 [Section No. 7.3.1.2]	

Submitter Information Verification

Submitter Full Name: JAMES M FELD
Organization: University of California
Street Address:
City:
State:
Zip:
Submittal Date: Sun Jul 06 11:53:03 EDT 2014

Public Input No. 244-NFPA 25-2014 [Section No. 7.3.1.2]

7.3. ~~1.~~ 2

~~Where underground~~ Underground piping supplies ~~individual~~ for fire sprinkler, standpipe, water spray, or foam-water sprinkler systems ~~and~~ shall be flow tested at minimum 5-year intervals.

7.3.2.1 Where there are no means to conduct full flow tests, tests generating the maximum available ~~flows~~ flow shall be permitted, provided the flow rate is not less than the system demand .

Statement of Problem and Substantiation for Public Input

This proposal is intended to renumber Sections 7.3.1.1 and 7.3.1.2. Testing for sprinkler, standpipe, water spray, and foam-water systems is not a subsection of 7.3.1 which applies only to fire hydrants.

The existing 7.3.1.2 is proposed to be renumbered to 7.3.2 to keep it separate from hydrant testing. This section is intended to verify that the water supply to sprinkler, standpipe, water spray, and foam-water systems is capable of satisfying the system demand. It does not precluded the use of a flow test using hydrants on private water supply systems that serve both hydrants and other fire protection systems from being used to evaluate the water supply for both hydrants and fire protection systems.

The existing 7.3.1.1 should apply to both testing of water supplies to hydrants and sprinkler, standpipe, water spray, and foam-water systems. Therefore, it is proposed to be renumbered to 7.3.3

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 243-NFPA 25-2014 [Section No. 7.3.1.1]	

Submitter Information Verification

Submitter Full Name: JAMES M FELD
Organization: University of California
Street Address:
City:
State:
Zip:
Submittal Date: Sun Jul 06 11:56:00 EDT 2014

Public Input No. 31-NFPA 25-2013 [New Section after 7.3.2.6]

7.3.2.7 Where hydrants are color coded by flow, hydrants shall be painted to the color coding standard utilized by the AHJ.

Statement of Problem and Substantiation for Public Input

Many jurisdictions utilize NFPA 291 Recommended Practice for Fire Flow Testing and Marking of Hydrants or another standard to color code hydrants by flow. Where a jurisdiction utilizes this practice, private fire service hydrants should marked and maintained in accordance with the color coding practice of the jurisdiction.

Submitter Information Verification

Submitter Full Name: Anthony Apfelbeck
Organization: Altamonte Springs Building/Fire Safety Division
Street Address:
City:
State:
Zip:
Submittal Date: Sun Dec 22 17:46:15 EST 2013

Public Input No. 90-NFPA 25-2014 [Section No. 7.4.2.1]

7.4.2.1
Hydrants shall be ~~lubricated~~ exercised annually to ensure that all stems, caps, plugs, and threads are in proper operating condition (ref . Table 7.2.2.4)

Statement of Problem and Substantiation for Public Input

Lubrication is "required" annually by the current text, as opposed as "lubricate as necessary" per text in Table 7.2.2.4 for hydrant threads. In addition, some hydrant stems are not designed to be lubricated. Changing the text to "exercise" would achieve the goal of verifying operability.

Submitter Information Verification

Submitter Full Name: HUGH CASTLES
Organization: ENTERGY RISK ENGINEERING
Street Address:
City:
State:
Zip:
Submittal Date: Fri Apr 11 12:22:44 EDT 2014

Public Input No. 187-NFPA 25-2014 [Section No. 8.1.1.2]

8.1.1.2 – *

Table 8.1.1.2 shall be used to determine the minimum required frequencies for inspection, testing, and maintenance.

Table 8.1.1.2 Summary of Fire Pump Inspection, Testing, and Maintenance

Item	Frequency	Reference
Inspection		
Pump house, heating ventilating louvers	Weekly	8.2.2(1)
Fire pump system	Weekly	8.2.2
Test		
Pump operation		
No-flow condition		8.3.1
Diesel engine–driven fire pump	Weekly	
Electric motor–driven fire pump	See 8.3.1.2	
Flow condition	Annually	8.3.3
Fire pump alarm signals	Annually	8.3.3.5
Maintenance		
Hydraulic	Annually	8.5
Mechanical transmission	Annually	8.5
Electrical system	Varies	8.5
Controller, various components	Varies	8.5
Motor	Annually	8.5
Diesel engine system, various components	Varies	8.5

Statement of Problem and Substantiation for Public Input

Links to proposed documentary/deficiency requirement for long term ITM intervals.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 180-NFPA 25-2014 [New Section after 4.3.5]	

Submitter Information Verification

Submitter Full Name: Robert Upson
Organization: National Fire Sprinkler Association
Affilliation: NFSA Engineering and Standards Committee
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jul 02 13:06:34 EDT 2014

Public Input No. 236-NFPA 25-2014 [New Section after 8.1.6]

TITLE OF NEW CONTENT

8.1.6.3* Where the pump suction is from a water storage tank, the pressure at the pump suction shall be adjusted based on the elevation of the water level in the tank by subtracting the difference between the elevation of the water level in a tank from the elevation of the center line of the pump.

Statement of Problem and Substantiation for Public Input

While the pressure gauge at the pump suction may indicate a pressure greater than -3 psi while the tank is full, it could drop considerably below -3 psi when the water level is near the center line of the pump. This elevation pressure must be taken into account to ensure the suction pressure is maintained at proper level.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 237-NFPA 25-2014 [New Section after A.8.1]	

Submitter Information Verification

Submitter Full Name: JAMES M FELD
Organization: University of California
Street Address:
City:
State:
Zip:
Submittal Date: Fri Jul 04 14:47:52 EDT 2014

Public Input No. 248-NFPA 25-2014 [Section No. 8.2.2]

8.2.2*

The pertinent visual observations specified in the following checklists shall be performed weekly:

(1) Pump house conditions as follows:

(2) _ Heat is adequate, not less than 40°F (4°C) for pump room with electric motor or diesel engine–driven pumps with engine heaters.

(3) _ Heat is adequate, not less than 70°F (21°C) for pump room with diesel engine–driven pumps without engine heaters.

(4) _ Ventilating louvers are free to operate.

(5) Pump system conditions as follows:

(6) _ Pump suction and discharge and bypass valves are fully open.

(7) _ Piping is free of leaks.

(8) _ Suction line pressure gauge reading is within acceptable range.

(9) _ System line pressure gauge reading is within acceptable range.

(10) _ Suction reservoir has the required water level.

(11) _ Wet pit suction screens are unobstructed and in place.

(12) _ Waterflow test valves are in the closed position.

(13) Electrical system conditions as follows:

(14) _ Controller pilot light (power on) is illuminated.

(15) _ Transfer switch normal pilot light is illuminated.

(16) _ Isolating switch is closed — standby (emergency) source.

(17) _ Reverse phase alarm pilot light is off, or normal phase rotation pilot light is on.

(18) _ Oil level in vertical motor sight glass is within acceptable range.

(19) _ Power to pressure maintenance (jockey) pump is provided.

(20) Diesel engine system conditions as follows:

(21) _ Fuel tank is at least two-thirds full.

(22) _ Controller selector switch is in auto position.

(23) _ Batteries' (2) voltage readings are within acceptable range.

(24) _ Batteries' (2) charging current readings are within acceptable range.

(25) _ Batteries' (2) pilot lights are on or battery failure (2) pilot lights are off.

(26) _ All alarm pilot lights are off.

(27) _ Engine running time meter is reading.

(28) _ Oil level in right angle gear drive is within acceptable range.

(29) _ Crankcase oil level is within acceptable range.

(30) _ Cooling water level is within acceptable range.

(31) _ Electrolyte level in batteries is within acceptable range.

(32) _ Battery terminals are free from corrosion.

(33) _ Water-jacket heater is operating.

(34)* Steam system conditions: Steam pressure gauge reading is within acceptable range.

Statement of Problem and Substantiation for Public Input

This section was changed last cycle. However, electric driven fire pumps were not included. I believe this was an oversight. This change would correct that situation.

Submitter Information Verification

Submitter Full Name: John Denhardt
Organization: Strickland Fire Protection, Inc
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jul 07 09:20:12 EDT 2014

Public Input No. 39-NFPA 25-2014 [Section No. 8.3]

8.3 * Testing.

8.3.1 Frequency.

8.3.1.1 *

A ~~non~~ no -flow test shall be conducted for diesel engine–driven fire pumps ~~without recirculating water back to the pump suction~~ on a test frequency in accordance with 8.3.1.1.1 or 8.3.1.1.2.

8.3.1.1.1

Except as permitted in 8.3.1.1.2, a weekly test frequency shall be required.

8.3.1.1.2 *

The test frequency shall be permitted to be established by an approved risk analysis.

8.3.1.2 *

A ~~non~~ no -flow test shall be conducted for electric motor–driven fire pumps ~~without recirculating water back to the pump suction~~ on a test frequency in accordance with 8.3.1.2.1, 8.3.1.2.2, 8.3.1.2.3, or 8.3.1.2.4.

8.3.1.2.1

Except as permitted in 8.3.1.2.2 and 8.3.1.2.3, a weekly test frequency shall be required for the following electric fire pumps:

(1) Fire pumps that serve fire protection systems in high rise buildings that are beyond the pumping capacity of the fire department

(2) Fire pumps with limited service controllers

(3) Vertical turbine fire pumps

(4) Fire pumps taking suction from ground level tanks or a water source that does not provide sufficient pressure to be of material value without the pump

8.3.1.2.2

A monthly test frequency shall be permitted for electric fire pumps not identified in 8.3.1.2.1.

8.3.1.2.3 *

A monthly test frequency shall be permitted for electric fire pump systems having a redundant fire pump.

8.3.1.2.4 *

The test frequency shall be permitted to be established by an approved risk analysis.

8.3. 1.3 A performance test shall be conducted annually in accordance with 8.3.3

8.3. 2 No-Flow ~~Condition~~ Test .

8.3.2.1

A no flow test of fire pump assemblies shall be conducted ~~without flowing water.~~ in accordance with 8.3.2.

8.3.2.1.1 The circulation relief valve shall discharge a small flow of water for electric motor and heat exchanger cooled diesel drive fire pumps..

8.3.2. 1. 2 Expect as permitted in 8.3.2.1.3 a main pressure relief valve (when installed) shall be permitted to “weep” but not discharge or a significant quantity of water.

8.3.2.1.3 For fire pump installations that were installed under a standard (1993 and earlier editions of NFPA 20) that did not prohibit a design that required the operation of a pressure relief valve to keep the discharge pressure below the rating of the system components, the pressure relief valve shall be permitted to operate as designed.during a no flow test..

8.3.2.1.3.1 Where the pressure relief valve is piped back to suction, the pump circulation relief valve shall not operate, but on electric motor and radiator cooled engine drives, a circulation pressure relief located downstream of the main pressure relief valve shall discharge sufficient water to prevent overheating of the pump.

8.3.2.2

The test shall be conducted by starting the pump automatically.

8.3.2.3

The electric pump shall run a minimum of 10 minutes.

8.3.2.4

The diesel pump shall run a minimum of 30 minutes.

8.3.2.5

A valve installed to open as a safety feature shall be permitted to discharge water.

8.3.2.6

An automatic timer that meets 8.3.2.6.1 through 8.3.2.6.3 shall be permitted to be substituted for the starting procedure.

8.3.2.6.1

A solenoid valve drain on the pressure control line shall be the initiating means for a pressure-actuated controller.

8.3.2.6.2

In a pressure-actuated controller, performance of this program timer shall be recorded as a pressure drop indication on the pressure recorder.

8.3.2.6.3

In a non-pressure-actuated controller, the test shall be permitted to be initiated by means other than a solenoid valve.

8.3.2.7

Qualified personnel shall be in attendance whenever the pump is in operation.

8.3.2.7.1 *

The use of the automatic timer allowed in 8.3.2.6 shall not eliminate the requirement of 8.3.2.7 to have qualified personnel present during test.

8.3.2.8

The pertinent visual observations or adjustments specified in the following checklists shall be conducted while the pump is idle:

(1) Record the system suction and discharge pressure gauge readings

(2) For pumps that use electronic pressure sensors to control the fire pump operation, record the current pressure and the highest and the lowest pressure shown on the fire pump controller event log

(3) If the highest or lowest pressure is outside of the expected range, record all information from the event log that helps identify the abnormality

8.3.2.9 * _

The pertinent visual observations or adjustments specified in the following checklists shall be conducted while the pump is running:

(1) Pump system procedure as follows:

(a) Record the pump starting pressure from the pressure switch or pressure transducer

(b) Record the system suction and discharge pressure gauge readings

(c) Inspect the pump packing glands for slight discharge

(d) Adjust gland nuts if necessary

(e) Inspect for unusual noise or vibration

(f) Inspect packing boxes, bearings, or pump casing for overheating

(g) Record pressure switch or pressure transducer reading and compare to the pump discharge gauge

(h) For pumps that use electronic pressure sensors to control the fire pump operation, record the current pressure and the highest and the lowest pressure shown on the fire pump controller event log

(i) For electric motor and radiator cooled diesel pumps, check the circulation relief valve for operation to discharge water

(2) Electrical system procedure as follows:

(a) Observe the time for motor to accelerate to full speed

(b) Record the time controller is on first step (for reduced voltage or reduced current starting)

(c) Record the time pump runs after starting (for automatic stop controllers)

(3) Diesel engine system procedure as follows:

(a) Observe the time for engine to crank

(b) Observe the time for engine to reach running speed

(c) Observe the engine oil pressure gauge, speed indicator, water, and oil temperature indicators periodically while engine is running

(d) Record any abnormalities

(e) Inspect the heat exchanger for cooling waterflow

(4) Steam system procedure as follows:

(a) Record the steam pressure gauge reading

(b) Observe the time for turbine to reach running speed

8.3.3 Annual Flow Testing.

8.3.3.1 * _

An annual test of each pump assembly shall be conducted by qualified personnel under no-flow (churn), rated flow, and 150 percent of the pump rated capacity flow of the fire pump by controlling the quantity of water discharged through approved test devices.

8.3.3.1.1

If available suction supplies do not allow flowing of 150 percent of the rated pump capacity, the fire pump shall be tested to the maximum allowable discharge.

8.3.3.1.2 * _

The annual test shall be conducted as described in 8.3.3.1.2.1, 8.3.3.1.2.2, or 8.3.3.1.2.3.

8.3.3.1.2.1 Use of Pump Discharge via Hose Streams.

(A)

Pump suction and discharge pressures and the flow measurements of each hose stream shall determine the total pump output.

(B)

Care shall be taken to prevent water damage by verifying there is adequate drainage for the high pressure water discharge from hoses.

8.3.3.1.2.2 Use of Pump Discharge via Bypass Flowmeter to Drain or Suction Reservoir.

Pump suction and discharge pressures and the flowmeter measurements shall determine the total pump output.

8.3.3.1.2.3 Use of Pump Discharge via Bypass Flowmeter to Pump Suction (Closed-Loop Metering).

(A)

Pump suction and discharge pressures and the flowmeter measurements shall determine the total pump output.

(B)

When testing includes recirculating water back to the fire pump suction, the temperature of the recirculating water shall be monitored to verify that it remains below temperatures that could result in equipment damage as defined by the pump and engine manufacturers.

8.3.3.1.3

Where the annual test is conducted periodically in accordance with 8.3.3.1.2.3, a test shall be conducted every 3 years in accordance with 8.3.3.1.2.1 or 8.3.3.1.2.2 in lieu of the method described in 8.3.3.1.2.3.

8.3.3.1.4

Where 8.3.3.1.2.2 or 8.3.3.1.2.3 is used, the flowmeter shall be adjusted immediately prior to conducting the test in accordance with the manufacturer's instructions.

8.3.3.1.4.1

If the test results are not consistent with the previous annual test, 8.3.3.1.2.1 shall be used.

8.3.3.1.4.2

If testing in accordance with 8.3.3.1.2.1 is not possible, a flowmeter calibration shall be performed and the test shall be repeated.

8.3.3.2

The pertinent visual observations, measurements, and adjustments specified in the following checklists shall be conducted annually while the pump is running and flowing water under the specified output condition:

(1) At no-flow condition (churn) as follows:

(a) Inspect the circulation relief valve for operation to discharge water

(b) Inspect the pressure relief valve (if installed) for proper operation

(2) At each flow condition as follows:

(a) Record the electric motor voltage and current (all lines)

(b) Record the pump speed in rpm

(c) Record the simultaneous (approximately) readings of pump suction and discharge pressures and pump discharge flow

(3) * For electric motor–driven pumps, do not shut down the pump until it has run for 10 minutes

(4) For diesel motor–driven pumps, do not shut down the pump until it has run for 30 minutes

8.3.3.3 * _

For installations having a pressure relief valve, the operation of the relief valve shall be closely observed during each flow condition to determine whether the pump discharge pressure exceeds the normal operating pressure of the system components.

8.3.3.3.1 * _

The pressure relief valve shall also be observed during each flow condition to determine whether the pressure relief valve closes at the proper pressure.

8.3.3.3.2

The pressure relief valve shall be closed during flow conditions if necessary to achieve minimum rated characteristics for the pump and reset to normal position at the conclusion of the pump test.

8.3.3.3.2.1

When it is necessary to close the relief valve to achieve minimum rated characteristics for the pump, the pump discharge control valve shall be closed if the pump churn pressure exceeds the system rated pressure.

8.3.3.3.3

When pressure relief valves are piped back to the fire pump suction, the temperature of the recirculating water shall be monitored to verify that it remains below temperatures that could result in equipment damage as defined by the pump and engine manufacturers.

8.3.3.4

For installations having an automatic transfer switch, the following test shall be performed to ensure that the overcurrent protective devices (i.e., fuses or circuit breakers) do not open:

(1) Simulate a power failure condition while the pump is operating at peak load

(2) Verify that the transfer switch transfers power to the alternate power source

(3) Verify that the pump continues to perform at peak horsepower load on the alternate power source for 10 minutes for an alternate utility or 30 minutes if the alternate power source is a standby generator set

(4) Remove the power failure condition and verify that, after a time delay, the pump is reconnected to the normal power source

8.3.3.5 * _

Alarm conditions shall be simulated by activating alarm circuits at alarm sensor locations, and all such local or remote alarm indicating devices (visual and audible) shall be observed for operation.

8.3.3.6 * _ Safety.

Section 4.9 shall be followed for safety requirements while working near electric motor–driven fire pumps.

8.3.3.7 * _ Suction Screens.

After the waterflow portions of the annual test or fire protection system activations, the suction screens shall be inspected and cleared of any debris or obstructions.

8.3.3.8 * _

Where engines utilize electronic fuel management control systems, the backup electronic control module (ECM) and the primary and redundant sensors for the ECM shall be tested annually.

8.3.4 Diesel Fuel Testing and Maintenance.

8.3.4.1

Diesel fuel shall be tested for degradation no less than annually.

8.3.4.1.1 * _

Fuel degradation testing shall comply with ASTM D 975-11b, *Standard Specification for Diesel Fuel Oils,* or ASTM D 6751-11b, *Standard Specification for Biodiesel Fuel Blend Stock (B100) for Middle Distillate Fuels*, as approved by the engine manufacturer, using ASTM D 7462-11, *Standard Test Method for Oxidation Stability of Biodiesel (B100) and Blends of Biodiesel with Middle Distillate Petroleum Fuel (Accelerated Method)*.

8.3.4.2 * _

If diesel fuel is found to be deficient in the testing required in 8.3.4.1.1, the fuel shall be reconditioned or replaced, the supply tank shall be cleaned internally, and the engine fuel filter(s) shall be changed.

8.3.4.2.1

After the restoration of the fuel and tank in 8.3.4.2, the fuel shall be retested every 6 months until experience indicates the fuel can be stored for a minimum of 1 year without degradation beyond that allowed in 8.3.4.1.1.

8.3.4.3

When provided, active fuel maintenance systems shall be listed for fire pump service.

8.3.4.3.1

Maintenance of active fuel maintenance systems shall be in accordance with the manufacturer's recommendations.

8.3.4.3.2

Maintenance of active fuel maintenance systems shall be performed at a minimum annual frequency for any portion of the system that the manufacturer does not provide a recommended maintenance frequency.

8.3.4.3.3

Fuel additives shall be used and maintained in accordance with the active fuel maintenance system manufacturer's recommendations.

8.3.5 Positive Displacement Pumps. [**20:**14.2.6.4.3]

8.3.5.1

Except as provided in 8.3.5.1 through 8.3.5.7, positive displacement pumps shall be tested in accordance with 8.3.1 through 8.3.3.

8.3.5.2

The pump flow for positive displacement pumps shall be tested and determined to meet the specified rated performance criteria where only one performance point is required to establish positive displacement pump acceptability. [**20:**14.2.6.4.3.1]

8.3.5.3

The pump flow test for positive displacement pumps shall be accomplished using a flowmeter or orifice plate installed in a test loop back to the supply tank, to the inlet side of a positive displacement water pump, or to drain. [**20:**14.2.6.4.3.2]

8.3.5.4

The flowmeter reading or discharge pressure shall be recorded and shall be in accordance with the pump manufacturer's flow performance data. [**20:**14.2.6.4.3.3]

8.3.5.5

If orifice plates are used, the orifice size and corresponding discharge pressure to be maintained on the upstream side of the orifice plate shall be made available to the authority having jurisdiction. [**20:**14.2.6.4.3.4]

8.3.5.6

Flow rates shall be as specified while operating at the system design pressure. Tests shall be performed in accordance with HI 3.6, *Rotary Pump Tests*. [**20:**14.2.6.4.3.5]

8.3.5.7

Positive displacement pumps intended to pump liquids other than water shall be permitted to be tested with water; however, the pump performance will be affected, and manufacturer's calculations shall be provided showing the difference in viscosity between water and the system liquid. [**20:**14.2.6.4.3.6]

8.3.6 Other Tests.

8.3.6.1

Engine generator sets supplying emergency or standby power to fire pump assemblies shall be tested routinely in accordance with NFPA 110, *Standard for Emergency and Standby Power Systems*.

8.3.6.2

Automatic transfer switches shall be tested routinely and exercised in accordance with NFPA 110.

8.3.6.3

Tests of appropriate environmental pump room space conditions (e.g., heating, ventilation, illumination) shall be made to ensure proper manual or automatic operation of the associated equipment.

8.3.6.4 * _
Parallel and angular alignment of the pump and driver shall be inspected during the annual test, and any misalignment shall be corrected.
8.3.7 Test Results and Evaluation.
8.3.7.1 * _ Interpretation.
8.3.7.1.1
The interpretation of the test results shall be the basis for determining performance of the pump assembly.
8.3.7.1.2
Qualified individuals shall interpret the test results.
8.3.7.2 Engine Speed.
8.3.7.2.1
Theoretical factors for correction to the rated speed shall be applied where determining the compliance of the pump per the test.
8.3.7.2.2
Increasing the engine speed beyond the rated speed of the pump at rated condition shall not be permitted as a method for meeting the rated pump performance.
8.3.7.3
The fire pump assembly shall be considered acceptable if either of the following conditions is shown during the test:

(1) * The test is no less than 95 percent of the pressure at rated flow and rated speed of the initial unadjusted field acceptance test curve, provided that the original acceptance test curve matches the original certified pump curve by using theoretical factors.

(2) The fire pump is no less than 95 percent of the performance characteristics as indicated on the pump nameplate.

8.3.7.4 * _
Degradation in excess of 5 percent of the pressure of the initial unadjusted acceptance test curve or nameplate shall require an investigation to reveal the cause of degraded performance.
8.3.7.5
Current and voltage readings whose product does not exceed the product of the rated voltage and rated full-load current multiplied by the permitted motor service factor shall be considered acceptable.
8.3.7.6
Voltage readings at the motor within 5 percent below or 10 percent above the rated (i.e., nameplate) voltage shall be considered acceptable.
8.3.7.7
The pump performance shall be evaluated using the unadjusted flow rates and pressures to ensure the pump can supply the system demand as supplied by the owner.

Statement of Problem and Substantiation for Public Input

Addresses issue of pumps that were designed under a different standard or earlier edition of NFPA 20 and require operation of a pressure relief valve to keep the discharge pressure below the rating of the system components.

Submitter Information Verification

Submitter Full Name: Gayle Pennel
Organization: Aon Fire Protection Engineerin
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jan 02 13:57:06 EST 2014

Public Input No. 205-NFPA 25-2014 [Section No. 8.3.1.1 [Excluding any Sub-Sections]]

A non-flow test shall be conducted for diesel engine–driven fire pumps ~~without recirculating water back to the pump suction~~ on a test frequency in accordance with 8.3.1.1.1 or 8.3.1.1.2.

Statement of Problem and Substantiation for Public Input

Requiring that the churn test be performed without recirculating water back to suction doesn't allow for pumps to be tested they way they're installed. If the pump was installed before recirculating was disallowed there may be a relief valve piped back to suction. It's unreasonable to close the relief valve during the churn test and then have to reopen it and adjust the relief pressure after the test. In a fire scenario, the relief valve won't be closed, so why close it during a test?

Submitter Information Verification

Submitter Full Name: Terry Victor
Organization: Tyco/SimplexGrinnell
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jul 03 08:31:14 EDT 2014

Public Input No. 178-NFPA 25-2014 [Sections 8.3.1.1, 8.3.1.2]

Sections 8.3.1.1, 8.3.1.2

8.3.1.1 * _

A non-flow test shall be conducted for diesel engine–driven fire pumps ~~without recirculating water back to the pump suction~~ on a test frequency in accordance with 8.3.1.1.1 or 8.3.1.1.2.

8.3.1.1.1

Except as permitted in 8.3.1.1.2, a weekly test frequency shall be required.

8.3.1.1.2 * _

The test frequency shall be permitted to be established by an approved risk analysis.

8.3.1.2 * _

A non-flow test shall be conducted for electric motor–driven fire pumps ~~without recirculating water back to the pump suction~~ on a test frequency in accordance with 8.3.1.2.1, 8.3.1.2.2, 8.3.1.2.3, or 8.3.1.2.4.

8.3.1.2.1

Except as permitted in 8.3.1.2.2 and 8.3.1.2.3, a weekly test frequency shall be required for the following electric fire pumps:

(1) Fire pumps that serve fire protection systems in high rise buildings that are beyond the pumping capacity of the fire department

(2) Fire pumps with limited service controllers

(3) Vertical turbine fire pumps

(4) Fire pumps taking suction from ground level tanks or a water source that does not provide sufficient pressure to be of material value without the pump

8.3.1.2.2

A monthly test frequency shall be permitted for electric fire pumps not identified in 8.3.1.2.1.

8.3.1.2.3 * _

A monthly test frequency shall be permitted for electric fire pump systems having a redundant fire pump.

8.3.1.2.4 * _

The test frequency shall be permitted to be established by an approved risk analysis.

Statement of Problem and Substantiation for Public Input

Pumps installed under older editions of NFPA 20 cannot be safely tested under the current provisions of NFPA 25 (2014) 8.3.1.1* and 8.3.1.2*.

The fundamental concern that this proposal addresses is that there are many fire pump systems that were installed in complete compliance with NFPA 20 at the time that they were designed and installed that cannot be safely tested in accordance with NFPA 25 due to the changes in the 2014 edition. Specifically, there are three types of fire pump systems affected by the language as it was processed by the NFPA:

1. Centrifugal pumps designed and installed in accordance with the 1993 and older editions of NFPA 20 where the pressure relief valve discharge was returned to the suction side of the pump. This practice was allowed in most of the editions of NFPA 20 up to (and including) the 1993 edition. The language in the 2014 edition of NFPA 25, it is allowed to continue without this amendment, now prohibits these pumps from being tested safely. Sections 8.3.1.1 and 8.3.1.2 require that the test be run "without recirculating water back to the pump suction", which means that the pressure relief valve will need to be forced closed every week (or month) when this test is run. By forcing the pressure relieve valve closed, the fire pump will over-pressurize the fire protection system, which is not a safe condition during a pump test.
2. Centrifugal pumps designed and installed in accordance with the 1999 and more recent editions of NFPA 20 where the pressure relief valve discharge was returned to the suction side of the pump and a circulation relief valve was installed. In these systems (as the annex note explains), the relief valve is supposed to be set to open a little bit under the churn condition to make sure that it works. But each week (or month) this would have to be shut down in order to run the test "without recirculating water back to the pump suction". While this shutdown would not immediately be a safety concern, if the driver were to go into an overspeed situation during the test, it would over-pressurize the system with the pressure relief valve closed in order to run the test.
3. Positive displacement pumps that send the discharge from the pressure relief valve to the pump suction. Chapter 8 of NFPA 25 applies as much to positive displacement pumps as it does to centrifugal pumps. A positive displacement pump works on the principle of pushing a specific volume of water through the use of pistons or rotary gears. The water has to go somewhere when it is being pushed. New sections 8.3.1.1 and 8.3.1.2 require the positive displacement pumps to be churn tested on a regular basis, but they specifically prohibit any recirculation of the water to the suction, which is exactly how NFPA 20 allows the user to deal with the issue of churn.

For all of the three conditions listed above, NFPA 20 has allowed the user to recirculate water during the churn test of the pump. It is wrong, and unsafe, for NFPA 25 to come along and say that the pump now needs to be run without recirculating the water. Pressure will build up in the fire protection system and blowouts will occur.

It has been suggested that NFPA 25 could stay as it is without this amendment and that the users of NFPA 25 could be retrained to close the discharge control valve prior to running the churn test. But that suggestion will not work. First, it assumes that the components of the pump installation up to the relief valve can handle the high pressure that might come from the pump. That would be an assumption since some of those components were not expected to see those pressures, so they might not be designed to handle them. Second, NFPA 25 discourages the closing of the control valves on the pump during testing. While NFPA 25 does not outright prohibit this practice, it does say that the Impairment Procedures would need to be followed whenever closing this valve in order to perform testing. That would be an extremely expensive way to deal with a weekly or monthly test.

The recirculation of water to the suction side of the pump has been an integral part of fire pump design for a long time as a mechanism for saving an important natural resource; water. Long before it was fashionable to design "green" buildings, fire protection professionals were recirculating water to the suction side of the pump rather than discharging it in a drain. Those systems have worked well over the years and we should not take a step backwards and force people to re-pipe their existing fire pumps to dump the discharge from the relief valve in a drain so that they can safely test them. We should accept this amendment and leave these existing systems alone.

We recognize that the newer engines have different needs. And the more recent editions of NFPA 20 properly see to their needs. If engine manufacturers are seeing a problem with the installation of newer engines, then enforcement of the rules already in NFPA 20 is a much better solution to the problem than a change to the rules of NFPA 25 that affect all existing systems.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 179-NFPA 25-2014 [Section No. A.8.3.1.1]	

Submitter Information Verification

Submitter Full Name: Robert Upson
Organization: National Fire Sprinkler Association
Affilliation: NFSA Engineering and Standards Committee
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jul 01 15:04:08 EDT 2014

Public Input No. 206-NFPA 25-2014 [Section No. 8.3.1.2 [Excluding any Sub-Sections]]

A non-flow test shall be conducted for electric motor–driven fire pumps ~~without recirculating water back to the pump suction~~ on a test frequency in accordance with 8.3.1.2.1, 8.3.1.2.2, 8.3.1.2.3, or 8.3.1.2.4.

Statement of Problem and Substantiation for Public Input

Requiring that the churn test be performed without recirculating water back to suction doesn't allow for pumps to be tested they way they're installed. If the pump was installed before recirculating was disallowed there may be a relief valve piped back to suction. It's unreasonable to close the relief valve during the churn test and then have to reopen it and adjust the relief pressure after the test. In a fire scenario, the relief valve won't be closed, so why close it during a test?

Submitter Information Verification

Submitter Full Name: Terry Victor
Organization: Tyco/SimplexGrinnell
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jul 03 08:39:17 EDT 2014

Public Input No. 143-NFPA 25-2014 [Section No. 8.3.1.2.1]

8.3.1.2.1

Except as permitted in 8.3.1.2.2 and 8.3.1.2.3, a weekly test frequency shall be required for the following electric fire pumps:

(1) Fire pumps that serve fire protection systems in ~~high rise~~ very tall buildings that are beyond the pumping capacity of the fire department

(2) Fire pumps with limited service controllers

(3) Vertical turbine fire pumps

(4) Fire pumps taking suction from ground level tanks or a water source that does not provide sufficient pressure to be of material value without the pump

Statement of Problem and Substantiation for Public Input

Despite the text pointing out it is buildings beyond the pumping capacity of the FD, the term High-rise triggers 75 ft as the critical height for many in the industry.

Submitter Information Verification

Submitter Full Name: Roland Huggins
Organization: American Fire Sprinkler Assoc.
Street Address:
City:
State:
Zip:
Submittal Date: Fri Jun 20 14:53:38 EDT 2014

Public Input No. 266-NFPA 25-2014 [Section No. 8.3.1.2.1]

8.3.1.2.1

Except as permitted in 8.3.1.2.2, 8.3.1.2.3 and 8.3.1.2.~~3~~ 4 , a weekly test frequency shall be required for the following electric fire pumps:

(1) Fire pumps that serve fire protection systems in high rise buildings that are beyond the pumping capacity of the fire department

(2) Fire pumps with limited service controllers

(3) Vertical turbine fire pumps

(4) Fire pumps taking suction from ground level tanks or a water source that does not provide sufficient pressure to be of material value without the pump

Statement of Problem and Substantiation for Public Input

There are three options to the weekly test that should be referenced as being allowable for test frequency as provided by 8.3.1.2.2, 8.3.1.2.3 and 8.3.1.2.4.

Submitter Information Verification

Submitter Full Name: Tracey Bellamy
Organization: Telgian Corporation
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jul 07 14:37:52 EDT 2014

Public Input No. 234-NFPA 25-2014 [Section No. 8.3.3.1.2]

8.3.3.1.2 * .

The annual test shall be conducted as described in 8.3.3.1.2.1, 8.3.3.1.2.2, ~~or~~ 8.3.3.1.2.3, or 8 . 3.3.1.2.4 .

8.3.3.1.2.1 Use of Pump Discharge via Hose Streams.

(A)

Pump suction and discharge pressures and the flow measurements of each hose stream shall determine the total pump output.

(B)

Care shall be taken to prevent water damage by verifying there is adequate drainage for the high pressure water discharge from hoses.

8.3.3.1.2.2 Use of Pump Discharge via Bypass Flowmeter to Drain or Suction Reservoir.

Pump suction and discharge pressures and the flowmeter measurements shall determine the total pump output.

8.3.3.1.2.3 Use of Pump Discharge via Bypass Flowmeter to Pump Suction (Closed-Loop Metering).

(A)

Pump suction and discharge pressures and the flowmeter measurements shall determine the total pump output.

(B)

When testing includes recirculating water back to the fire pump suction, the temperature of the recirculating water shall be monitored to verify that it remains below temperatures that could result in equipment damage as defined by the pump and engine manufacturers.

8.3.3.1.2.4 Where the pump suction is from both a water storage tank and a utility water main, both sources of water supply shall be tested independently of each other using the test methods described in 8.3.3.1.2.1, 8.3.3.2.1.2, or 8.3.3.1.2.3.

Statement of Problem and Substantiation for Public Input

High-rise buildings designed to the requirements of the old UBC and the newer IBC require a secondary water supply which is connected to a fire pump. In order to properly test the suction supply to the pump both water supply sources must be used independent of each other.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 235-NFPA 25-2014 [New Section after A.8.3.3.1.2]	

Submitter Information Verification

Submitter Full Name: JAMES M FELD
Organization: University of California
Street Address:
City:
State:
Zip:
Submittal Date: Fri Jul 04 14:22:39 EDT 2014

Public Input No. 219-NFPA 25-2014 [Section No. 8.3.3.1.2.1(B)]

~~(B)~~ –
~~Care shall be taken to prevent water damage by verifying there is adequate drainage for the high pressure water discharge from hoses.~~

Statement of Problem and Substantiation for Public Input

This P.I. and the related PI 168 seeks to remove section 8.3.3.1.2.1 (B) from chapter 8 and add this requirement to chapter 4 as an owner's responsibility. Ensuring that there is adequate drainage is outside the scope of the inspector and should be the responsibility of the building owner. It is not practical that during the course of system ITM, that the contractor be charged with verifying proper drainage. This is a general building maintenance issue and as such should be part of the owner's responsibility. It is the owners responsibility that all systems are maintained as operational.

A separate PI (PI 167) has been submitted to delete this language from section 13.2.4. , PI 168 seeks to add this language to chapter 4 as an owners responsibility.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 168-NFPA 25-2014 [New Section after 4.1.3]	same concept
Public Input No. 167-NFPA 25-2014 [Section No. 13.2.4]	same concept

Submitter Information Verification

Submitter Full Name: Roland Asp
Organization: National Fire Sprinkler Association
Affilliation: NFSA E&S Committee
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jul 03 12:13:00 EDT 2014

Public Input No. 147-NFPA 25-2014 [Section No. 8.3.3.1.4 [Excluding any Sub-Sections]]

~~Where 8.3.3.1.2.2 or 8.3.3.1.2.3 is used, the flowmeter shall be adjusted immediately prior to conducting the test in accordance with the manufacturer's instructions.~~

Statement of Problem and Substantiation for Public Input

There appears to be no field adjustments so this sentence is unnecessary and confusing.

Submitter Information Verification

Submitter Full Name: Roland Huggins
Organization: American Fire Sprinkler Assoc
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jun 23 14:06:14 EDT 2014

Public Input No. 11-NFPA 25-2013 [Section No. 8.3.3.4]

8.3.3.4

For installations having an automatic transfer switch, the following test shall be performed to ensure that the overcurrent protective devices (i.e., fuses or circuit breakers) do not open:

(1) Simulate a power failure condition while the pump is operating at peak load

(2) Verify that the transfer switch transfers power to the alternate power source

(3) Verify that the pump continues to perform at peak horsepower load on the alternate power source for ~~10 minutes for an alternate utility or 30 minutes if the alternate power source is a standby generator set~~ 2 minutes

(4) Remove the power failure condition and verify that, after a time delay, the pump is reconnected to the normal power source

Statement of Problem and Substantiation for Public Input

The change to this section initiated in 2013 brings in unsubstantiated and out of scope testing requirements (testing the power source for reliability), places an undue burden on contractors and owners, and is extremely wasteful. A large fire pump installation would utilize 10's of thousands of gallons of water to meet these requirements. A limited test time provides a facility to ensure that the switchover happens correctly and that no major faults exist, higher level testing of the power sources is not within the scope of NFPA 25.

Submitter Information Verification

Submitter Full Name: Mike Morey
Organization: BMW Constructors
Street Address:
City:
State:
Zip:
Submittal Date: Wed Nov 06 07:34:24 EST 2013

Public Input No. 247-NFPA 25-2014 [Section No. 8.3.3.4]

8.3.3.4

For installations having an automatic transfer switch, the following test shall be performed to ensure that the overcurrent protective devices (i.e., fuses or circuit breakers) do not open:

(1) Simulate a power failure condition while the pump is operating at peak load

(2) Verify that the transfer switch transfers power to the alternate power source

(3) Verify that the pump continues to perform at peak horsepower load on the alternate power source for ~~10 minutes for an alternate utility or 30 minutes if the alternate power source is a standby generator set~~ 5 minutes.

(4) Remove the power failure condition and verify that, after a time delay, the pump is reconnected to the normal power source

Statement of Problem and Substantiation for Public Input

The 10 minute and 30 minute duration requirements were added during last cycle. While this changed passed with no negative votes or public comments, there was no technical justification for this change. The most critical part of the transfer action is the transfer of power itself at peak load. Once the fire pump is under full load on the alternate power source, the alternate power source is in a stead state operation. There is no need to operate the fire pump under this condition any longer than 5 minutes. Operating a 1000 gpm fire pump for 30 minutes under peak load would typical discharge 45,000 gallons of water. In today's green (leed) environment, this is a huge waste of resources without justification. Standby generator systems must comply with NFPA 110 which require their own load test. Typically, a fire pump is only placing the generator under partial load, a much less test in most installtions. I urge the committee to reconsider what was enacted last cycle. I think a 5 minute time duration is more than adequate. If the committee disagrees, please provide specific reasons and justification for the 10 minute and 30 minute duration requirements.

Submitter Information Verification

Submitter Full Name: John Denhardt
Organization: Strickland Fire Protection, Inc
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jul 07 08:40:02 EDT 2014

Public Input No. 161-NFPA 25-2014 [New Section after 8.3.3.5]

8.3.3.5.1

Alarm conditions that require the controller to be opened in order to create or simulate the condition shall not be required to be tested or observed for operation.

Statement of Problem and Substantiation for Public Input

Alarm condition such as phase reversal and loss of phase are very dangerous to simulate on some controllers. Those controllers where the door needs to be opened and wires physically need to be moved to create the phase loss or reversal condition, just to test the signal, present a problem to testing contractors. Personnel need special training and special Personal Protective Equipment (PPE) in order to perform these tests. The information gathered from these tests is not worth the risk associated with performing the tests.
For controllers that have been manufactured with a mechanism for performing this test from the outside of the controller, it makes sense to retain the test.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 160-NFPA 25-2014 [Section No. 8.3.3.5]	

Submitter Information Verification

Submitter Full Name: Robert Upson
Organization: National Fire Sprinkler Association
Affilliation: NFSA Engineering and Standards Committee
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jun 30 13:27:52 EDT 2014

Public Input No. 160-NFPA 25-2014 [Section No. 8.3.3.5]

8.3.3.5 * .
Alarm conditions shall be simulated by activating alarm circuits at alarm sensor locations, and all such local or remote alarm indicating devices (visual and audible) shall be observed for operation except for those covered in 8 , 3.3.5.1 .

Statement of Problem and Substantiation for Public Input

Alarm condition such as phase reversal and loss of phase are very dangerous to simulate on some controllers. Those controllers where the door needs to be opened and wires physically need to be moved to create the phase loss or reversal condition, just to test the signal, present a problem to testing contractors. Personnel need special training and special Personal Protective Equipment (PPE) in order to perform these tests. The information gathered from these tests is not worth the risk associated with performing the tests.
For controllers that have been manufactured with a mechanism for performing this test from the outside of the controller, it makes sense to retain the test.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 161-NFPA 25-2014 [New Section after 8.3.3.5]	

Submitter Information Verification

Submitter Full Name: Robert Upson
Organization: National Fire Sprinkler Association
Affilliation: NFSA Engineering and Standards Committee
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jun 30 13:21:51 EDT 2014

Public Input No. 268-NFPA 25-2014 [Section No. 8.3.4.3.3]

8.3.4.3.3
~~Fuel~~ Where utilized, fuel additives shall be used and maintained in accordance with the active fuel maintenance system manufacturer's recommendations.

Statement of Problem and Substantiation for Public Input

As stated the section requires that fuel additives are always needed. The proposed change provides that when they are used that must be used and maintained properly.

Submitter Information Verification

Submitter Full Name: Tracey Bellamy
Organization: Telgian Corporation
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jul 07 14:44:09 EDT 2014

Public Input No. 154-NFPA 25-2014 [Section No. 8.3.6.1]

~~8.3.6.1 –~~
~~Engine generator sets supplying emergency or standby power to fire pump assemblies shall be tested routinely in accordance with NFPA 110, *Standard for Emergency and Standby Power Systems* .~~

Statement of Problem and Substantiation for Public Input

This section is being interpreted as requiring the running of the generator, under full load, for the duration of the water supply. The definition of “full load” is 150% of the fire pump’s rated flow, so some building owners are being forced to waste a huge amount of water to run this test with questionable value.

Submitter Information Verification

Submitter Full Name: Roland Asp
Organization: National Fire Sprinkler Association
Affilliation: NFSA E&S Committee
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jun 30 10:08:32 EDT 2014

Public Input No. 238-NFPA 25-2014 [Section No. 8.3.7]

8.3.7 Test Results and Evaluation.

8.3.7.1 * Interpretation.

8.3.7.1.1

The interpretation of the test results shall be the basis for determining performance of the pump assembly.

8.3.7.1.2

Qualified individuals shall interpret the test results.

8.3.7.2 ~~Engine Speed.~~ Evaluation of Fire Pump Test Results

8.3.7.2.1

~~Theoretical factors for correction to the rated speed shall be applied where determining the compliance of the pump per the test~~ The fire pump test results shall be evaluated based on the original manufacturer's certified pump test characteristic curve and to ensure the fire pump assembly including the water supply source can supply the fire protection system demand as provided by the owner.

8.3.7.2.2

Increasing the engine speed beyond the rated speed of the pump at rated condition shall not be permitted as a method for ~~meeting~~ evaluating the rated pump performance.

8.3.7.3

~~The fire pump assembly shall be considered acceptable if~~

Evaluation of Pump Test Results based on the Manufacturer's certified Pump Test Characteristic Curve

8.3.7.3.1 The flow rates and pressures recorded during the fire pump test shall be corrected to the rated speed of the fire pump and recorded graphically.

8.3.7.3.2 The graph of the corrected flow rates and pressures shall be compared to the original manufacturer's certified pump test characteristic curve.

8.3.7.3.3 The fire pump test results shall be considered acceptable with respect to the manufacturer's certified pump test characteristic curve if either of the following conditions is

~~shown during the test~~

satisfied :

(1) * The pump test

~~is~~

results are no less than 95 percent of the

~~pressure at rated~~

flow

~~and rated speed~~

rates and pressures at each test point than those of the

~~initial~~

original unadjusted field

~~acceptance~~

test curve, provided

~~that~~

the original acceptance test curve

~~matches~~

adjusted to rated speed matches the original manufacturer's certified pump test characteristic curve

~~by using theoretical factors~~

.

(2) The

~~fire~~

pump

~~is~~

test results are no less than 95 percent of the performance characteristics as indicated on the fire pump

~~nameplate~~

nameplate at each test point.

8.3.7.3.4 *

Degradation in excess of 5 percent of the pressure of the initial unadjusted acceptance test curve or nameplate shall require an investigation to reveal the cause of degraded performance and the deficiency shall be corrected.

8.3.7. ~~5~~

~~Current and voltage readings whose product does~~

4

For electric motor driven fire pumps operating a constant speed, the current at each flow rate test point and phase shall not exceed the product of the electric motor service factor and the full load amperage rating of the motor.

8.3.7.4.1 Where the current at each flow rate test point and at each phase exceeds the product of the electrric motor service factor and the full load amperage rating of the motor, the source of the problem shall be identified and corrected.

8.3.7.5 For electric motor driven fire pumps operating at varying voltage, the product of the test voltage and current at each test point and on each phase shall not exceed the product of the ~~rated~~ voltage and ~~rated~~ the full-load current ~~multiplied by~~ times the ~~permitted~~ motor service factor ~~shall be considered acceptable~~.

8.3.7.5.1 Where the product of the test voltage and current at each test point and on each phase exceeds the product of the voltage and the full-load current times the motor service factor, the source of the problem shall be identified and corrected.

8.3.7.6

Voltage readings at the motor within 5 percent below or 10 percent above the rated (i.e., nameplate) voltage shall be considered acceptable.

8.3.7.7

The pump performance shall be evaluated using the unadjusted flow rates and pressures to ensure the pump can supply the system demand as supplied by the owner.

8.3.7.7.1 Where the fire pump is not capable of supplying the system demand, the source of the problem shall be identified and corrected to the satisfaction of the authority having jurisdiction.

Statement of Problem and Substantiation for Public Input

This proposal is intended to clean up the language in Section 8.3.7 and to correct the error in 8.3.7.5 which applies only to VFD driven pumps. Pumps operating at constant voltage are not covered in the existing language as they should be. Also, terminology is corrected to be consistent with NFPA 20 terminology by deleting "theoretical factors" and including "manufacturer's certified pump characteristic curve". Existing language has suggested to some pump testers that compliance with existing section 8.3.7.3 is all that is needed to pass the pump test even if the pump cannot supply the system demand as required by 8.3.7.7. They are treating these requirements as an "either/or" requirement.

Submitter Information Verification

Submitter Full Name: JAMES M FELD
Organization: University of California
Street Address:
City:
State:
Zip:
Submittal Date: Fri Jul 04 15:43:53 EDT 2014

Public Input No. 123-NFPA 25-2014 [Section No. 8.3.7.1]

8.3.7.1 * – Data Interpretation.

8.3.7.1.1

The interpretation of the test results shall be the basis for determining performance of the pump assembly.

8.3.7.1.2

Qualified individuals shall interpret the test results.

Statement of Problem and Substantiation for Public Input

previous committee comments

Submitter Information Verification

Submitter Full Name: DARRELL UNDERWOOD
Organization: K G Y LLC
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jun 05 17:26:58 EDT 2014

Public Input No. 124-NFPA 25-2014 [Section No. 8.3.7.1.1]

8.3.7.1.1
The interpretation of the ~~test results~~ flow test results and performance relative to the fire system demand requirements shall be the basis for determining acceptable performance of the fire pump assembly .

Statement of Problem and Substantiation for Public Input

previous committee comments

Submitter Information Verification

Submitter Full Name: DARRELL UNDERWOOD
Organization: K G Y LLC
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jun 05 17:27:48 EDT 2014

Public Input No. 122-NFPA 25-2014 [New Section after 8.3.7.1.2]

TITLE OF NEW CONTENT 8.3.7.1.3

Theoretical factors for correction to rated speed and suction and discharge velocity pressure per definitions in NFPA 20 3.3.2.3.2 & 3.3.2.3.3.1 shall be applied when determining the compliance of the pump per the test.

Type your content here ...

Statement of Problem and Substantiation for Public Input

previous committee comments

Submitter Information Verification

Submitter Full Name: DARRELL UNDERWOOD
Organization: K G Y LLC
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jun 05 17:21:42 EDT 2014

Public Input No. 125-NFPA 25-2014 [New Section after 8.3.7.1.2]

TITLE OF NEW CONTENT 8.3.7.1.2.1

Interpretation of results shall include review of pump test data and written evaluation of conclusions.

Type your content here ...

Statement of Problem and Substantiation for Public Input

previous committee comments

Submitter Information Verification

Submitter Full Name: DARRELL UNDERWOOD
Organization: K G Y LLC
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jun 05 17:30:53 EDT 2014

Public Input No. 126-NFPA 25-2014 [Section No. 8.3.7.2]

8.3.7.2 Engine Speed Adjustments .

8.3.7.2.1

Theoretical factors for correction to the rated speed shall be applied where determining the compliance of the pump per the test.

8.3.7.2.2

Increasing the engine speed beyond the rated speed of the pump at rated condition shall not be permitted as a method for meeting the rated pump performance.

Statement of Problem and Substantiation for Public Input

previous committee comments

Submitter Information Verification

Submitter Full Name: DARRELL UNDERWOOD
Organization: K G Y LLC
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jun 05 17:32:52 EDT 2014

Public Input No. 127-NFPA 25-2014 [Section No. 8.3.7.2.1]

8.3.7.2.1

~~Theoretical factors~~ Mathematical adjustments shall be made for correction of recorded test data to the original pump rated speed shall be applied ~~where determining the compliance of the pump per the test~~ when determining flow tst performance relative to the original pump performance .

Statement of Problem and Substantiation for Public Input

previous committee comments

Submitter Information Verification

Submitter Full Name: DARRELL UNDERWOOD
Organization: K G Y LLC
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jun 05 17:34:12 EDT 2014

Public Input No. 221-NFPA 25-2014 [Section No. 8.3.7.2.1]

8.3.7.2.1
Theoretical factors for correction to the rated speed shall be permitted to be applied ~~where determining the compliance of the pump per the test.~~ to the net pressure and flow data obtained during the test in order to determine if the pump complies with 8.3.7.3.

Statement of Problem and Substantiation for Public Input

This change addresses three concerns with the existing language:

1) The current language requires all of the data for every fire pump test to be adjusted for speed, even where the unadjusted results already comply with 8.3.7.3. If the pump is already within 95% of the original pump curve or nameplate data, but ran at a slightly lower speed, why should the tester be required to take the time to perform a mathematical adjustment when the pump has already passed the test.

2) The current language is not clear as to what the theoretical factors need to be applied to. This proposal fixes that by clarifying that the factors are applied to the net pressure and flow.

3) The sections needs to clarify that the theoretical factors apply to section 8.3.7.3 and not 8.3.7.7. It would be a mistake to apply the theoretical factors to determine compliance with 8.3.77.

Submitter Information Verification

Submitter Full Name: Kenneth Isman
Organization: National Fire Sprinkler Association
Affilliation: NFSA Engineering and Standards Committee
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jul 03 13:17:05 EDT 2014

Public Input No. 246-NFPA 25-2014 [Section No. 8.3.7.2.1]

~~8.3.7.2.1~~ –
~~Theoretical factors for correction to the rated speed shall be applied where determining the compliance of the pump per the test.~~

Statement of Problem and Substantiation for Public Input

Adjusting for speed is unnecessary for an annual pump test. The purpose of the test is to determine if in a fire scenario the pump is operating at 95% of its rating or above, and if the pump unit will meet the required system demand. Doing an additional calculation to adjust for speed variation doesn't help determine either of the goals of the test.

Submitter Information Verification

Submitter Full Name: Terry Victor
Organization: Tyco/SimplexGrinnell
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jul 07 07:24:41 EDT 2014

Public Input No. 128-NFPA 25-2014 [New Section after 8.3.7.2.2]

TITLE OF NEW CONTENT 8.3.7.2.3*

Net Performance at pump rated speed shall be graphically plotted and evaluated with a comparison to the net pressure curve from owner documents, copies of original manufacturers pump curves, pump nameplate data, or pump retrofit/rebuild documents.

Type your content here ...

Statement of Problem and Substantiation for Public Input

previous committee comments

Submitter Information Verification

Submitter Full Name: DARRELL UNDERWOOD
Organization: K G Y LLC
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jun 05 17:38:32 EDT 2014

Public Input No. 129-NFPA 25-2014 [Section No. 8.3.7.3]

8.3.7.3 –
~~The fire pump assembly~~

A fire pump performance flow test shall be considered acceptable
~~if either~~
when both of the following conditions
~~is shown during the test*~~ ~~The test is no less~~
are determined from test results:

(1) * Pump flow performance adjusted for speed per 8.3.7.2.1 is no less than 95 percent of the

~~pressure at rated flow and rated speed of the initial unadjusted field acceptance test curve, provided that the original acceptance test curve matches the original certified pump curve by using theoretical factors.The fire pump is no less than 95 percent of the performance characteristics as indicated on the pump nameplate~~

(1) original specification documentation across the complete flow performance curve.

(2) * Pump performance unadjusted for speed meets or exceed all requirements for supplied fire system demands based on owner-supplied system requirements including available sprinkler riser design placard information .

Statement of Problem and Substantiation for Public Input

previous committee comments

Submitter Information Verification

Submitter Full Name: DARRELL UNDERWOOD
Organization: K G Y LLC
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jun 05 17:41:43 EDT 2014

Public Input No. 245-NFPA 25-2014 [Section No. 8.3.7.3]

8.3.7.3

The fire pump assembly shall be considered acceptable if either of the following conditions is shown during the test:

(1) * The test is no less than 95 percent of the pressure at rated flow and rated speed of the initial unadjusted field acceptance test curve~~, provided that the original acceptance test curve matches the original certified pump curve by using theoretical factors~~ .

(2) The fire pump is no less than 95 percent of the performance characteristics as indicated on the pump nameplate.

Statement of Problem and Substantiation for Public Input

Asking an inspector to verify that the initial unadjusted field acceptance test curve met the certified pump curve is an unreasonable requirement. This verification should have been performed when the system was installed.

Submitter Information Verification

Submitter Full Name: Terry Victor
Organization: Tyco/SimplexGrinnell
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jul 07 07:16:00 EDT 2014

Public Input No. 28-NFPA 25-2013 [Sections 8.3.7.3, 8.3.7.4]

Sections 8.3.7.3, 8.3.7.4

8.3.7.3

The fire pump assembly shall be considered acceptable if either of the following conditions is shown during the test:

(1) * The test is no less ~~than 95~~ than 90 percent of the pressure at rated flow and rated speed of the initial unadjusted field acceptance test curve, provided that the original acceptance test curve matches the original certified pump curve by using theoretical factors.

(2) The fire pump is no less than ~~95~~ 90 percent of the performance characteristics as indicated on the pump nameplate.

8.3.7.4 *

Degradation in excess ~~of 5~~ of 10 percent of the pressure of the initial unadjusted acceptance test curve or nameplate shall require an investigation to reveal the cause of degraded performance.

Statement of Problem and Substantiation for Public Input

Field flow test arrangements and conditions vary greatly as do the experience of personnel performing such tests. Requiring fire pumps to perform at or above 95% of their original test curve or rated flow and pressure during an annual field performance test is resulting in unnecessary burdens on owners to investigate poor pump test results that are due to the inaccuracies of field equipment, test procedures and/or personnel experience. Changing the requirement to 90% will account for variations in testing arrangements, equipment and experience and reduce the number of good pumps that are needlessly taken out of service for internal inspections.

Over the past 40 years, I have personally tested more than 1000 fire pumps in a wide variety of facilities and countries. I have predominantly used hand held pitot tubes but have also used orifice plate, turbine and sonic meters. Today's meters are much more accurate but still susceptible to inaccuracy if not installed and used correctly. My personal experience is that fire pumps needing an overhaul due to wear or modification of piping to solve suction and discharge problems will perform well below 90% of their design curve and rated flow and pressure. Requiring pumps to meet 90% of their design curve should not result in poor fire pumps being allowed to remain in service.

Submitter Information Verification

Submitter Full Name: Joseph Zanoni
Organization: Baker Engineering & Risk Consultants
Affilliation: NONE
Street Address:
City:
State:
Zip:
Submittal Date: Tue Dec 17 10:43:12 EST 2013

Public Input No. 130-NFPA 25-2014 [Section No. 8.3.7.4]

8.3.7.4 * –
~~Degradation~~

In evaluating adjusted pump flow performance, d
egradation in excess of 5 percent
~~of the pressure of the initial unadjusted acceptance test curve or nameplate~~
shall require an investigation to reveal the cause of degraded performance. Investigation findings shall be documented through written evaluation as part of the fire pump test documents.

Statement of Problem and Substantiation for Public Input

previous committee comments

Submitter Information Verification

Submitter Full Name: DARRELL UNDERWOOD
Organization: K G Y LLC
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jun 05 17:53:33 EDT 2014

Public Input No. 249-NFPA 25-2014 [Section No. 8.6.1]

8.6.1

Whenever a component in a fire pump is adjusted, repaired, rebuilt, or replaced, the tests required to restore the system to service shall be performed in accordance with Table 8.6.1.

Table 8.6.1 Summary of Component Replacement Testing Requirements

Component	Adjust	Repair	Rebuild	Replace	Test Criteria
Fire Pump System					
Entire pump assembly				X	Perform acceptance test in accordance with NFPA 20, *Standard for the Installation of Stationary Pumps for Fire Protection*
Impeller/rotating assembly		X		X	Perform acceptance test in accordance with NFPA 20
Casing		X		X	Perform acceptance test in accordance with NFPA 20 with alignment inspection
Bearings				X	Perform annual test in accordance with 8.3.3
Sleeves				X	Perform annual test in accordance with 8.3.3
Wear rings				X	Perform annual test in accordance with 8.3.3
Main shaft		X		X	Perform annual test in accordance with 8.3.3
Packing	X			X	Perform test in accordance with 8.3.2
Mechanical Transmission					
Gear right angle drives		X	X	X	Perform acceptance test in accordance with NFPA 20
Drive coupling	X	X	X	X	Perform test in accordance with 8.3.3 with alignment inspection. ~~[ROC 112]~~
Electrical System/Controller					
Entire controller				X	Perform acceptance test in accordance with NFPA 20
Electronic component or module that can prevent the controller from starting or running			X	X	Perform acceptance test in accordance with NFPA 20
Electronic component or module that will not prevent the controller from starting or running			X	X	Perform weekly test in accordance with NFPA 25
Plumbing part				X	Perform weekly test in accordance with NFPA 25
Isolating switch				X	Perform test in accordance with 8.3.2 and exercise six times
Circuit breaker	X				Perform six momentary starts in accordance with NFPA 20
Circuit breaker				X	Perform a 1-hour full-load current test in accordance with 8.3.3, including six starts at peak load
Electrical connections	X				Perform test in accordance with 8.3.2
Main contactor		X		X	Perform test in accordance with 8.3.3 with six starts
Power monitor				X	Perform six operations of the circuit breaker/isolation switch disconnect (cycle the power on/off)
Start relay				X	Perform test in accordance with 8.3.2 with six starts
Pressure switch	X			X	Perform test in accordance with 8.3.2 and exercise six times automatically
Pressure transducer	X			X	Perform six automatic no-load starts
Manual start or stop switch				X	Perform six operations under load
Transfer switch — load carrying parts		X	X	X	Perform a 1-hour full-load current test, six starts at peak horsepower load, and transfer from normal power to emergency power and back one time
Transfer switch — no-load parts		X	X	X	Perform six no-load operations of transfer of power
Electric Motor Driver					
Electric motor		X	X	X	Perform acceptance test in accordance with 8.3.3, including alignment tests
Motor bearings				X	Perform annual test in accordance with 8.3.3
Incoming power conductors				X	Perform a 1-hour full-load current test including six starts at peak load
Diesel Engine Driver					
Entire engine			X	X	Perform acceptance test in accordance with NFPA 20
Fuel transfer pump	X		X	X	Perform test in accordance with 8.3.2
Fuel injector pump or ECM	X			X	Perform test in accordance with 8.3.3
Fuel system filter		X		X	Perform test in accordance with 8.3.2
Combustion air intake system		X		X	Perform test in accordance with 8.3.2
Fuel tank		X		X	Perform test in accordance with 8.3.2
Cooling system		X	X	X	Perform test in accordance with 8.3.3
Batteries		X		X	Perform start/stop sequence in accordance with NFPA 25
Battery charger		X		X	Perform test in accordance with 8.3.2
Electric system		X		X	Perform test in accordance with 8.3.2
Lubrication filter/oil service		X		X	Perform test in accordance with 8.3.2
Steam Turbines					
Steam turbine		X		X	Perform acceptance test in accordance with NFPA 20
Steam regulator or source upgrade		X		X	Perform acceptance test in accordance with NFPA 20
Positive Displacement Pumps					
Entire pump				X	Perform acceptance test in accordance with NFPA 20
Rotors				X	Perform annual test in accordance with 8.3.3
Plungers				X	Perform annual test in accordance with 8.3.3
Shaft				X	Perform annual test in accordance with 8.3.3
Driver		X	X	X	Perform acceptance test in accordance with NFPA 20
Bearings				X	Perform annual test in accordance with 8.3.3
Seals				X	Perform test in accordance with 8.3.2
Pump House and Miscellaneous Components					
Baseplate		X			Perform test in accordance with 8.3.2 with alignment inspection
Baseplate				X	Perform test in accordance with 8.3.3 with alignment inspection
Foundation		X	X	X	Perform test in accordance with 8.3.2 with alignment inspection
Suction/discharge pipe		X		X	Perform visual inspection in accordance with 8.2.2

Component	Adjust	Repair	Rebuild	Replace	Test Criteria
Suction/discharge fittings		X		X	Perform visual inspection in accordance with 8.2.2
Suction/discharge valves		X	X	X	Perform operational test in accordance with 13.3.3.1

Statement of Problem and Substantiation for Public Input

Editorial - ROC reference

Submitter Information Verification

Submitter Full Name: John Denhardt
Organization: Strickland Fire Protection, Inc
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jul 07 09:26:34 EDT 2014

Public Input No. 9-NFPA 25-2013 [Section No. 8.6.1]

8.6.1

Whenever a component in a fire pump is adjusted, repaired, rebuilt, or replaced, the tests required to restore the system to service shall be performed in accordance with Table 8.6.1.

Table 8.6.1 Summary of Component Replacement Testing Requirements

Component	Adjust	Repair	Rebuild	Replace	Test Criteria
Fire Pump System					
Entire pump assembly				X	Perform acceptance test in accordance with NFPA 20, *Standard for the Installation of Stationary Pumps for Fire Protection*
Impeller/rotating assembly		X		X	Perform acceptance test in accordance with NFPA 20
Casing		X		X	Perform acceptance test in accordance with NFPA 20 with alignment inspection
Bearings				X	Perform annual test in accordance with 8.3.3
Sleeves				X	Perform annual test in accordance with 8.3.3
Wear rings				X	Perform annual test in accordance with 8.3.3
Main shaft		X		X	Perform annual test in accordance with 8.3.3
Packing	X			X	Perform test in accordance with 8.3.2
Mechanical Transmission					
Gear right angle drives		X	X	X	Perform acceptance test in accordance with NFPA 20
Drive coupling	X	X	X	X	Perform test in accordance with 8.3.3 with alignment inspection (ROC 112]
Electrical System/Controller					
Entire controller				X	Perform acceptance test in accordance with NFPA 20
Electronic component or module that can prevent the controller from starting or running			X	X	Perform acceptance test in accordance with NFPA 20
Electronic component or module that will not prevent the controller from starting or running			X	X	Perform weekly test in accordance with NFPA 25
Plumbing part				X	Perform weekly test in accordance with NFPA 25
Isolating switch				X	Perform test in accordance with 8.3.2 and exercise six times
Circuit breaker	X				Perform six momentary starts in accordance with NFPA 20
Circuit breaker				X	
~~Perform a 1-hour full-load current test~~					
Test in accordance with 8.3.3,					
~~including~~					
including six starts at peak load and operate pump for a minimum of one-hour					
Electrical connections	X				Perform test in accordance with 8.3.2
Main contactor		X	X		Perform test in accordance with 8.3.3 with six starts
Power monitor			X		Perform six operations of the circuit breaker/isolation switch disconnect (cycle the power on/off)
Start relay			X		Perform test in accordance with 8.3.2 with six starts
Pressure switch	X		X		Perform test in accordance with 8.3.2 and exercise six times automatically
Pressure transducer	X		X		Perform six automatic no-load starts
Manual start or stop switch			X		Perform six operations under load
Transfer switch — load carrying parts		X	X	X	
~~Perform a 1-hour full-load current test, six~~					
Test in accordance with 8.3.3, including six starts at peak horsepower load, operate pump for a minimum of one-hour, and transfer from normal power to emergency power and back one time					
Transfer switch — no-load parts		X	X	X	Perform six no-load operations of transfer of power
Electric Motor Driver					
Electric motor		X	X	X	Perform acceptance test in accordance with 8.3.3, including alignment tests
Motor bearings				X	Perform annual test in accordance with 8.3.3
Incoming power conductors				X	
~~Perform a 1-hour full-load current test~~					
Test in accordance with 8.3.3 and operate pump for a minimum of one-hour, including six starts at peak load					
Diesel Engine Driver					
Entire engine			X	X	Perform acceptance test in accordance with NFPA 20
Fuel transfer pump	X		X	X	Perform test in accordance with 8.3.2
Fuel injector pump or ECM	X			X	Perform test in accordance with 8.3.3
Fuel system filter		X		X	Perform test in accordance with 8.3.2
Combustion air intake system		X		X	Perform test in accordance with 8.3.2
Fuel tank		X		X	Perform test in accordance with 8.3.2
Cooling system		X	X	X	Perform test in accordance with 8.3.3
Batteries		X		X	Perform start/stop sequence in accordance with NFPA 25
Battery charger		X		X	Perform test in accordance with 8.3.2
Electric system		X		X	Perform test in accordance with 8.3.2
Lubrication filter/oil service		X		X	Perform test in accordance with 8.3.2
Steam Turbines					
Steam turbine		X		X	Perform acceptance test in accordance with NFPA 20
Steam regulator or source upgrade		X		X	Perform acceptance test in accordance with NFPA 20
Positive Displacement Pumps					

Entire pump				X	Perform acceptance test in accordance with NFPA 20
Rotors				X	Perform annual test in accordance with 8.3.3
Plungers				X	Perform annual test in accordance with 8.3.3
Shaft				X	Perform annual test in accordance with 8.3.3
Driver		X	X	X	Perform acceptance test in accordance with NFPA 20
Bearings				X	Perform annual test in accordance with 8.3.3
Seals				X	Perform test in accordance with 8.3.2
Pump House and Miscellaneous Components					
Baseplate		X			Perform test in accordance with 8.3.2 with alignment inspection
Baseplate				X	Perform test in accordance with 8.3.3 with alignment inspection
Foundation		X	X	X	Perform test in accordance with 8.3.2 with alignment inspection
Suction/discharge pipe		X		X	Perform visual inspection in accordance with 8.2.2
Suction/discharge fittings		X		X	Perform visual inspection in accordance with 8.2.2
Suction/discharge valves		X	X	X	Perform operational test in accordance with 13.3.3.1

Statement of Problem and Substantiation for Public Input

A full load test for one-hour requires flowing 150% of rated flow for one-hour. NFPA 20 requires the pump to run for one-hour but it does not have to be under full load the entire time. The changes are consistant with NFPA 20 requirements

Submitter Information Verification

Submitter Full Name: Gayle Pennel
Organization: Aon Fire Protection Engineerin
Street Address:
City:
State:
Zip:
Submittal Date: Thu Oct 31 16:00:09 EDT 2013

Public Input No. 188-NFPA 25-2014 [Section No. 9.1.1.2]

9.1.1.2 *

Table 9.1.1.2 shall be used to determine the minimum required frequencies for inspection, testing, and maintenance.

Table 9.1.1.2 Summary of Water Storage Tank Inspection, Testing, and Maintenance

Item	Frequency	Reference
Inspection		
Water temperature — low temperature alarms connected to constantly attended location	Monthly	9.2.4.2
Water temperature — low temperature alarms not connected to constantly attended location	Weekly	9.2.4.3
Heating system — tanks with supervised low temperature alarms connected to constantly attended location	Weekly*	9.2.3.1
Heating system — tanks without supervised low temperature alarms connected to constantly attended location	Daily*	9.2.3.2
Control valves		Table 13.1.1.2
Water level — tanks equipped with supervised water level alarms connected to constantly attended location	Quarterly	9.2.1.1
Water level — tanks without supervised water level alarms connected to constantly attended location	Monthly	9.2.1.2
Air pressure — tanks that have their air pressure source supervised	Quarterly	9.2.2.1
Air pressure — tanks without their air pressure source supervised	Monthly	9.2.2.2
Tank — exterior	Quarterly	9.2.5.1
Support structure	Quarterly	9.2.5.1
Catwalks and ladders	Quarterly	9.2.5.1
Surrounding area	Quarterly	9.2.5.2
Hoops and grillage	Annually	9.2.5.4
Painted/coated surfaces	Annually	9.2.5.5
Expansion joints	Annually	9.2.5.3
Interior — tanks without corrosion protection	3 years	9.2.6.1.1
Interior — all other tanks	5 years	9.2.6.1.2
Temperature alarms — connected to constantly attended location	Monthly*	9.2.4.2
Temperature alarms — not connected to constantly attended location	Weekly*	9.2.4.3
Check valves		Table 13.1.1.2
Test		
Tank heating system	Prior to heating season	9.3.2
Low water temperature alarms	Monthly*	9.3.3
High temperature limit switches	Monthly*	9.3.4
Water level alarms	Semiannually	9.3.5
Level indicators	5 years	9.3.1
Pressure gauges	5 years	9.3.6
Valve status test		13.3.1.2.2.1
Maintenance		
Water level	—	9.4.2
Control valves	—	Table 13.1.1.2
Embankment-supported coated fabric (ESCF)	—	9.4.6
Check valves	—	13.4.2.2

*Cold weather/heating season only.

Statement of Problem and Substantiation for Public Input

Links to proposed documentary/deficiency requirement for long term ITM intervals.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 180-NFPA 25-2014 [New Section after 4.3.5]	

Submitter Information Verification

Submitter Full Name: Robert Upson
Organization: National Fire Sprinkler Association
Affilliation: NFSA Engineering and Standards Committee
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jul 02 13:12:40 EDT 2014

Public Input No. 216-NFPA 25-2014 [Section No. 9.1.1.2]

9.1.1.2

Table 9.1.1.2 shall be used to determine the minimum required frequencies for inspection, testing, and maintenance.

Table 9.1.1.2 Summary of Water Storage Tank Inspection, Testing, and Maintenance

Item	Frequency	Reference
Inspection		
Water temperature — low temperature alarms connected to constantly attended location	Monthly	9.2.4.2
Water temperature — low temperature alarms not connected to constantly attended location	Weekly	9.2.4.3
Heating system — tanks with supervised low temperature alarms connected to constantly attended location	Weekly*	9.2.3.1
Heating system — tanks without supervised low temperature alarms connected to constantly attended location	Daily*	9.2.3.2
Control valves		Table 13.1.1.2
Water level — tanks equipped with supervised water level alarms connected to constantly attended location	Quarterly	9.2.1.1
Water level — tanks without supervised water level alarms connected to constantly attended location	Monthly	9.2.1.2
Air pressure — tanks that have their air pressure source supervised	Quarterly	9.2.2.1
Air pressure — tanks without their air pressure source supervised	Monthly	9.2.2.2
Tank — exterior	Quarterly	9.2.5.1
Support structure	Quarterly	9.2.5.1
Catwalks and ladders	Quarterly	9.2.5.1
Surrounding area	Quarterly	9.2.5.2
Hoops and grillage	Annually	9.2.5.4
Painted/coated surfaces	Annually	9.2.5.5
Expansion joints	Annually	9.2.5.3
Interior — ~~tanks~~ steel tanks without corrosion protection	3 years	9.2.6.1.1
Interior — all other tanks	5 years	9.2.6.1.2
Temperature alarms — connected to constantly attended location	Monthly*	9.2.4.2
Temperature alarms — not connected to constantly attended location	Weekly*	9.2.4.3
Check valves		Table 13.1.1.2
Test		
Tank heating system	Prior to heating season	9.3.2
Low water temperature alarms	Monthly*	9.3.3
High temperature limit switches	Monthly*	9.3.4
Water level alarms	Semiannually	9.3.5
Level indicators	5 years	9.3.1
Pressure gauges	5 years	9.3.6
Valve status test		13.3.1.2.2.1
Maintenance		
Water level	—	9.4.2
Control valves	—	Table 13.1.1.2
Embankment-supported coated fabric (ESCF)	—	9.4.6
Check valves	—	13.4.2.2

*Cold weather/heating season only.

Statement of Problem and Substantiation for Public Input

Table 9.1.1.2 states that all tanks without corrosion protection shall have an interior inspection every three years. This is in direct conflict with the requirements of the referenced rule, 9.2.6.1.1 where only the interior of STEEL tanks without corrosion protection shall be inspected every three years. All others shall be inspected every 5 years.

This P.I. seeks to add the word steel to the table so that the table states that the interior of steel tanks without corrosion protection shall be inspected every three years.

Submitter Information Verification

Submitter Full Name: Roland Asp
Organization: National Fire Sprinkler Association
Affilliation: NFSA E&S Committee
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jul 03 11:57:28 EDT 2014

Public Input No. 232-NFPA 25-2014 [Section No. 9.1.2]

9.1.2 Valves ~~and~~ , Valve Components, Trim, Alarm Devices, and Connections.
Valves ~~and~~ valve components, trim, alarm devices, and fire department connections shall be inspected, tested, and maintained in accordance with Chapter 13.

Statement of Problem and Substantiation for Public Input

This proposal is intended to refer the user to Chapter 13 for alarm devices.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 225-NFPA 25-2014 [Section No. 13.2.6]	

Submitter Information Verification

Submitter Full Name: JAMES M FELD
Organization: University of California
Street Address:
City:
State:
Zip:
Submittal Date: Fri Jul 04 14:06:53 EDT 2014

Public Input No. 269-NFPA 25-2014 [Section No. 9.2.3.1]

9.2.3.1
Tank heating systems installed on tanks equipped with supervised low water temperature alarms that are connected to a constantly attended location shall be inspected weekly during the heating season .

Statement of Problem and Substantiation for Public Input

Similar to 9.2.3.2 inspection of the heating system need only be conducted during the heating season.

Submitter Information Verification

Submitter Full Name: Tracey Bellamy
Organization: Telgian Corporation
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jul 07 14:47:44 EDT 2014

Public Input No. 258-NFPA 25-2014 [Section No. 9.3.3]

9.3.3

Low water temperature signals, where provided, shall be ~~tested monthly (cold weather only).~~ tested annually prior to the heating season..

Statement of Problem and Substantiation for Public Input

To be consistent with the NFPA 72 inspection, testing and maintenance, technical committee action at the recent second revision meeting to change all electrically connected water-based fire protection system initiating device supervisory alarm switches (control valve, air pressure, room temperature, water level and water temperature) listed in Table 14.4.3.2, Item 17(J) to an annual frequency.

Submitter Information Verification

Submitter Full Name: Frank Van Overmeiren
Organization: FP&C Consultants, Inc.
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jul 07 14:08:48 EDT 2014

Public Input No. 259-NFPA 25-2014 [Section No. 9.3.4]

9.3.4 * .
High water temperature limit switches on tank heating systems, where provided, shall be ~~tested monthly whenever~~ tested annually prior to the heating ~~system is in service~~ season .

Statement of Problem and Substantiation for Public Input

To be consistent with the NFPA 72 inspection, testing and maintenance, technical committee action at the recent second revision meeting to change all electrically connected water-based fire protection system initiating device supervisory alarm switches (control valve, air pressure, room temperature, water level and water temperature) listed in Table 14.4.3.2, Item 17(J) to an annual frequency.

Submitter Information Verification

Submitter Full Name: Frank Van Overmeiren
Organization: FP&C Consultants, Inc.
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jul 07 14:11:34 EDT 2014

Public Input No. 260-NFPA 25-2014 [Section No. 9.3.5]

9.3.5 * .
High and low water level signals shall be tested ~~semiannually~~ annually .

Statement of Problem and Substantiation for Public Input

To be consistent with the NFPA 72 inspection, testing and maintenance, technical committee action at the recent second revision meeting to change all electrically connected water-based fire protection system initiating device supervisory alarm switches (control valve, air pressure, room termperature, water level and water temperature) listed in Table 14.4.3.2, Item 17(J) to an annual frequency.

Submitter Information Verification

Submitter Full Name: Frank Van Overmeiren
Organization: FP&C Consultants, Inc.
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jul 07 14:14:58 EDT 2014

Public Input No. 270-NFPA 25-2014 [Section No. 9.5.1.1 [Excluding any Sub-Sections]]

Automatic tank fill valves shall be inspected in accordance with Table 9.5.1.1.

Table 9.5.1.1 Summary of Automatic Tank Fill Valve Inspection and Testing

Item	Frequency	Reference
Inspection		
Strainers, filters, orifices (inspect/clean)	5 years	13.4.1.2
Enclosure (during cold weather)	Daily/weekly	13.4.3.1.1
Exterior	Monthly	13.4.3.1.6
Interior	Annually/5 years	13.4.3.1.7
Test		
Automatic tank fill valve	Annually	9.5.3

Statement of Problem and Substantiation for Public Input

Add the reference for the Test of the Automatic tank fill valve to the reference column.

Submitter Information Verification

Submitter Full Name: Tracey Bellamy
Organization: Telgian Corporation
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jul 07 14:50:07 EDT 2014

Public Input No. 142-NFPA 25-2014 [Section No. 9.6.1]

9.6.1

Whenever a component in a water storage tank is adjusted, repaired, reconditioned, or replaced, the action required in Table 9.6.1 shall be performed.

Table 9.6.1 Summary of Component Replacement Action Requirements

Component	Adjust	Repair/ Recondition	Replace	Test Criteria
Tank Components				
Tank interior		X	X	Remove debris
				Verify integrity in conformance with NFPA 22, *Standard for Water Tanks for Private Fire Protection*
Tank exterior		X	X	Verify integrity in conformance with NFPA 22
Support structure		X	X	Verify integrity in conformance with NFPA 22
Heating system	X	X	X	Verify heating system is in conformance with NFPA 22
Catwalks and ladders	X	X	X	Verify integrity in conformance with NFPA 22
Hoops and grillage	X	X	X	Verify integrity in conformance with NFPA 22
Expansion joints	X	X	X	Verify integrity in conformance with NFPA 22
Overflow piping	X	X	X	Verify integrity in conformance with NFPA 22
Insulation		X	X	Verify integrity in conformance with NFPA 22
Alarm and Supervisory Components				
High and low water level	X	X	X	Operational test for conformance with NFPA 22 and/or *NFPA 72*, *National Fire Alarm and Signaling Code*, and the design water levels
Water temperature	X	X	X	Operational test for conformance with NFPA 22 and/or *NFPA 72*
Enclosure temperature	X	X	X	Operational test for conformance with NFPA 22 and/or *NFPA 72*
Valve supervision	X	X	X	Operational test for conformance with NFPA 22 and/or *NFPA 72*
Fill and Discharge Components				
Automatic fill valves				~~See Chapter 13~~ Perform annual test in accordance with 9.5.3
Valves	X	X	X	See Chapter 13
Status Indicators				
Level indicators	X	X	X	Verify conformance with NFPA 22
Pressure gauges			X	Verify at 0 psi (0 bar) and at system working pressure

Statement of Problem and Substantiation for Public Input

There is no criteria in ch 13 on Automatic Fill Valves.

Submitter Information Verification

Submitter Full Name: Roland Huggins
Organization: American Fire Sprinkler Assoc.
Street Address:
City:
State:
Zip:
Submittal Date: Fri Jun 20 13:30:04 EDT 2014

Public Input No. 117-NFPA 25-2014 [Section No. 10.1.1.2]

10.1.1.2

Table 10.1.1.2 shall be used to determine the minimum required frequencies for inspection, testing, and maintenance.

Table 10.1.1.2 Summary of Water Spray Fixed System Inspection, Testing, and Maintenance

Item	Frequency	Reference
Inspection		
Backflow preventer		Chapter 13
Check valves		Chapter 13
Control valves	Weekly (sealed)	Chapter 13
Control valves	Monthly (locked, supervised)	Chapter 13
Deluge valve		10.2.2, Chapter 13
Detection systems		*NFPA 72* , *National Fire Alarm and Signaling Code*
Detector check valves		Chapter 13
Drainage	Quarterly	10.2.8
Electric motor		10.2.9, Chapter 8
Engine drive		10.2.9, Chapter 8
Fire pump		10.2.9, Chapter 8
Fittings	Quarterly	10.2.4, 10.2.4.1
Fittings (rubber-gasketed)		
~~Quarterly~~		
Annually and after each system activation	10.2.4.1, A.10.2.4.1	
Gravity tanks		10.2.10, Chapter 9
Hangers	Annually and after each system activation	10.2.4.2
Heat (deluge valve house)	Daily/weekly	10.2.1.5, Chapter 13
Nozzles	Annually and after each system activation	10.2.1.1, 10.2.1.2, 10.2.1.6, 10.2.5.1, 10.2.5.2
Pipe	Annually and after each system activation	10.2.1.1, 10.2.1.2, 10.2.4, 10.2.4.1
Pressure tank		10.2.10, Chapter 9
Steam driver		10.2.9, Chapter 8
Strainers	Manufacturer's instruction	10.2.7
Suction tanks		10.2.10, Chapter 9
Supports		
~~Quarterly~~		
Annually and after each system activation	10.2.1.1, 10.2.1.2, 10.2.4.2	
Water supply piping		10.2.6.1, 10.2.6.2
UHSWSS — detectors	Monthly	10.4.2
UHSWSS — controllers	Each shift	10.4.3
UHSWSS — valves	Each shift	10.4.4
Operational Test		
Backflow preventer		Chapter 13
Check valves		Chapter 13
Control valves	Annually	13.3.3.1
Deluge valve		10.2.2, Chapter 13
Detection systems		*NFPA 72*
Detector check valve		Chapter 13
Electric motor		10.2.9, Chapter 8
Engine drive		10.2.9, Chapter 8
Fire pump		10.2.9, Chapter 8
Flushing	Annually	10.2.1.3, Section 10.3 (flushing of connection to riser, part of annual test)
Gravity tanks		10.2.10, Chapter 9
Main drain test	Annually	13.3.3.4
Manual release	Annually	10.2.1.3, 10.3.6
Nozzles	Annually	10.2.1.3, 10.2.1.6, Section 10.3
Pressure tank		Section 10.2, Chapter 9
Steam driver		10.2.9, Chapter 8
Strainers	Annually	10.2.1.3, 10.2.1.7, 10.2.7
Suction tanks		10.2.10, Chapter 9
Waterflow alarm	Quarterly	Chapter 5
Water spray system test	Annually	Section 10.3, Chapter 13
Water supply flow test		7.3.1
UHSWSS	Annually	Section 10.4
Valve status test		13.3.1.2.1
Maintenance		
Backflow preventer		Chapter 13
Check valves		Chapter 13
Control valves	Annually	10.2.1.4, Chapter 13
Deluge valve		10.2.2, Chapter 13
Detection systems		*NFPA 72*
Detector check valve		Chapter 13
Electric motor		10.2.9, Chapter 8
Engine drive		10.2.9, Chapter 8
Fire pump		10.2.9, Chapter 8

Gravity tanks		10.2.10, Chapter 9
Pressure tank		10.2.6, Chapter 9
Steam driver		10.2.9, Chapter 8
Strainers	Annually	10.2.1.4, 10.2.1.6, 10.2.7
Strainers (baskets/screen)	5 years	10.2.1.4, 10.2.1.7, A.10.2.7
Suction tanks		10.2.10, Chapter 9
Water spray system	Annually	10.2.1.4, Chapter 13

Additional Proposed Changes

File Name	Description	Approved
LGK_NFPA_25-2014_PI_Table_10-1-1-2.pdf	PI Form	

Statement of Problem and Substantiation for Public Input

This revision is suggested to align the requirements for the inspection of fittings with that for the associated pipe and to align the inspection of pipe supports with that for the associated hangers.
Pipe and fittings (piping) and hangers/supports are to be inspected annually in Chapters 5, 6, 7 and 11, so there is no reason that they be treated differently in Chapter 10.
As per A.10.2.4.1 rubber gasketed fittings are to be inspected to see if they are protected by the water spray. Since the water-spray nozzles are only inspected annually, there is no reason to look at the gasketed fittings more often either.

Submitter Information Verification

Submitter Full Name: Larry Keeping
Organization: Professional Loss Control
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jun 05 13:04:54 EDT 2014

Public Input No. 156-NFPA 25-2014 [Section No. 10.1.1.2]

10.1.1.2

Table 10.1.1.2 shall be used to determine the minimum required frequencies for inspection, testing, and maintenance.

Table 10.1.1.2 Summary of Water Spray Fixed System Inspection, Testing, and Maintenance

Item	Frequency	Reference
Inspection		
Backflow preventer		Chapter 13
Check valves		Chapter 13
Control valves	Weekly (sealed)	Chapter 13
Control valves	Monthly (locked, supervised)	Chapter 13
Deluge valve		10.2.2, Chapter 13
Detection systems		*NFPA 72* , *National Fire Alarm and Signaling Code*
Detector check valves		Chapter 13
Drainage	Quarterly	10.2.8
Electric motor		10.2.9, Chapter 8
Engine drive		10.2.9, Chapter 8
Fire pump		10.2.9, Chapter 8
Fittings	Quarterly	10.2.4, 10.2.4.1
Fittings (rubber-gasketed)	Quarterly	10.2.4.1, A.10.2.4.1
Gravity tanks		10.2.10, Chapter 9
Hangers	Annually and after each system activation	10.2.4.2
Heat (deluge valve house)	Daily/weekly	10.2.1.5, Chapter 13
Nozzles	Annually and after each system activation	10.2.1.1, 10.2.1.2, 10.2.1.6, 10.2.5.1, 10.2.5.2
Pipe	Annually and after each system activation	10.2.1.1, 10.2.1.2, 10.2.4, 10.2.4.1
Pressure tank		10.2.10, Chapter 9
Steam driver		10.2.9, Chapter 8
Strainers	Manufacturer's instruction	10.2.7
Suction tanks		10.2.10, Chapter 9
Supports	Quarterly	10.2.1.1, 10.2.1.2, 10.2.4.2
Water supply piping		10.2.6.1, 10.2.6.2
UHSWSS — detectors	Monthly	10.4.2
UHSWSS — controllers	Each shift	10.4.3
UHSWSS — valves	Each shift	10.4.4
Operational Test		
Backflow preventer		Chapter 13
Check valves		Chapter 13
Control valves	Annually	13.3.3.1
Deluge valve		10.2.2, Chapter 13
Detection systems		*NFPA 72*
Detector check valve		Chapter 13
Electric motor		10.2.9, Chapter 8
Engine drive		10.2.9, Chapter 8
Fire pump		10.2.9, Chapter 8
~~Flushing Annually 10.2.1.3, Section 10.3 (flushing of connection to riser, part of annual test)~~		
Gravity tanks		10.2.10, Chapter 9
Main drain test	Annually	13.3.3.4
Manual release	Annually	10.2.1.3, 10.3.6
Nozzles	Annually	10.2.1.3, 10.2.1.6, Section 10.3
Pressure tank		Section 10.2, Chapter 9
Steam driver		10.2.9, Chapter 8
Strainers	Annually	10.2.1.3, 10.2.1.7, 10.2.7
Suction tanks		10.2.10, Chapter 9
Waterflow alarm	Quarterly	Chapter 5
Water spray system test	Annually	Section 10.3, Chapter 13
Water supply flow test		7.3.1
UHSWSS	Annually	Section 10.4
Valve status test		13.3.1.2.1
Maintenance		
Backflow preventer		Chapter 13
Check valves		Chapter 13
Control valves	Annually	10.2.1.4, Chapter 13
Deluge valve		10.2.2, Chapter 13
Detection systems		*NFPA 72*
Detector check valve		Chapter 13
Electric motor		10.2.9, Chapter 8
Engine drive		10.2.9, Chapter 8
Fire pump		10.2.9, Chapter 8
Gravity tanks		10.2.10, Chapter 9
Pressure tank		10.2.6, Chapter 9
Steam driver		10.2.9, Chapter 8
Strainers	Annually	10.2.1.4, 10.2.1.6, 10.2.7

Strainers (baskets/screen)	5 years	10.2.1.4, 10.2.1.7, A.10.2.7
Suction tanks		10.2.10, Chapter 9
Water spray system	Annually	10.2.1.4, Chapter 13

Statement of Problem and Substantiation for Public Input

This P.I. seeks to remove the annual flushing requirement from the operational test table. Flushing is generally not part of the operational test of water spray fixed systems and the flushing reference is unclear. The reference send you to section 10.2.1.3 but this section does not require an annual flushing test. Also the reference states "Section 10.3 (flushing of connection to riser, part of annual test) This is unclear as section 10.3 does not require a flushing test as part of the operational test.

Submitter Information Verification

Submitter Full Name: Roland Asp
Organization: National Fire Sprinkler Association
Affilliation: NFSA E&S Committee
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jun 30 10:36:42 EDT 2014

Public Input No. 172-NFPA 25-2014 [Section No. 10.1.1.2]

10.1.1.2

Table 10.1.1.2 shall be used to determine the minimum required frequencies for inspection, testing, and maintenance.

Table 10.1.1.2 Summary of Water Spray Fixed System Inspection, Testing, and Maintenance

Item	Frequency	Reference
Inspection		
Backflow preventer		Chapter 13
Braces	Quarterly	10.2.4.2
Check valves		Chapter 13
Control valves	Weekly (sealed)	Chapter 13
Control valves	Monthly (locked, supervised)	Chapter 13
Deluge valve		10.2.2, Chapter 13
Detection systems		*NFPA 72* , *National Fire Alarm and Signaling Code*
Detector check valves		Chapter 13
Drainage	Quarterly	10.2.8
Electric motor		10.2.9, Chapter 8
Engine drive		10.2.9, Chapter 8
Fire pump		10.2.9, Chapter 8
Fittings	Quarterly	10.2.4, 10.2.4.1
Fittings (rubber-gasketed)	Quarterly	10.2.4.1, A.10.2.4.1
Gravity tanks		10.2.10, Chapter 9
Hangers		
~~Annually and after each system activation~~		
Quarterly	10.2.4.2	
Heat (deluge valve house)	Daily/weekly	10.2.1.5, Chapter 13
Nozzles	Annually and after each system activation	10.2.1.1, 10.2.1.2, 10.2.1.6, 10.2.5.1, 10.2.5.2
Pipe	Annually and after each system activation	10.2.1.1, 10.2.1.2, 10.2.4, 10.2.4.1
Pressure tank		10.2.10, Chapter 9
Steam driver		10.2.9, Chapter 8
Strainers	Manufacturer's instruction	10.2.7
Suction tanks		10.2.10, Chapter 9
Supports	Quarterly	10.2.1.1, 10.2.1.2, 10.2.4.2
Water supply piping		10.2.6.1, 10.2.6.2
UHSWSS — detectors	Monthly	10.4.2
UHSWSS — controllers	Each shift	10.4.3
UHSWSS — valves	Each shift	10.4.4
Operational Test		
Backflow preventer		Chapter 13
Check valves		Chapter 13
Control valves	Annually	13.3.3.1
Deluge valve		10.2.2, Chapter 13
Detection systems		*NFPA 72*
Detector check valve		Chapter 13
Electric motor		10.2.9, Chapter 8
Engine drive		10.2.9, Chapter 8
Fire pump		10.2.9, Chapter 8
Flushing	Annually	10.2.1.3, Section 10.3 (flushing of connection to riser, part of annual test)
Gravity tanks		10.2.10, Chapter 9
Main drain test	Annually	13.3.3.4
Manual release	Annually	10.2.1.3, 10.3.6
Nozzles	Annually	10.2.1.3, 10.2.1.6, Section 10.3
Pressure tank		Section 10.2, Chapter 9
Steam driver		10.2.9, Chapter 8
Strainers	Annually	10.2.1.3, 10.2.1.7, 10.2.7
Suction tanks		10.2.10, Chapter 9
Waterflow alarm	Quarterly	Chapter 5
Water spray system test	Annually	Section 10.3, Chapter 13
Water supply flow test		7.3.1
UHSWSS	Annually	Section 10.4
Valve status test		13.3.1.2.1
Maintenance		
Backflow preventer		Chapter 13
Check valves		Chapter 13
Control valves	Annually	10.2.1.4, Chapter 13
Deluge valve		10.2.2, Chapter 13
Detection systems		*NFPA 72*
Detector check valve		Chapter 13
Electric motor		10.2.9, Chapter 8
Engine drive		10.2.9, Chapter 8
Fire pump		10.2.9, Chapter 8
Gravity tanks		10.2.10, Chapter 9

Pressure tank		10.2.6, Chapter 9
Steam driver		10.2.9, Chapter 8
Strainers	Annually	10.2.1.4, 10.2.1.6, 10.2.7
Strainers (baskets/screen)	5 years	10.2.1.4, 10.2.1.7, A.10.2.7
Suction tanks		10.2.10, Chapter 9
Water spray system	Annually	10.2.1.4, Chapter 13

Statement of Problem and Substantiation for Public Input

Changes hanger inspection interval from annually to quarterly for consistency with hangers. Adds similar inspection for braces.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 173-NFPA 25-2014 [Section No. 10.2.4.2]	
Public Input No. 220-NFPA 25-2014 [Global Input]	

Submitter Information Verification

Submitter Full Name: Robert Upson
Organization: National Fire Sprinkler Association
Affilliation: NFSA Engineering and Standards Committee
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jul 01 14:03:25 EDT 2014

Public Input No. 174-NFPA 25-2014 [Section No. 10.1.1.2]

10.1.1.2

Table 10.1.1.2 shall be used to determine the minimum required frequencies for inspection, testing, and maintenance.

Table 10.1.1.2 Summary of Water Spray Fixed System Inspection, Testing, and Maintenance

Item	Frequency	Reference
Inspection		
Backflow preventer		Chapter 13
Check valves		Chapter 13
Control valves	Weekly (sealed)	Chapter 13
Control valves	Monthly (locked, supervised)	Chapter 13
Deluge valve		10.2.2, Chapter 13
Detection systems		*NFPA 72* , *National Fire Alarm and Signaling Code*
Detector check valves		Chapter 13
Drainage	Quarterly	10.2.8
Electric motor		10.2.9, Chapter 8
Engine drive		10.2.9, Chapter 8
Fire pump		10.2.9, Chapter 8
Fittings	Quarterly	10.2.4, 10.2.4.1
Fittings (rubber-gasketed)	Quarterly	10.2.4.1, A.10.2.4.1
Gravity tanks		10.2.10, Chapter 9
Hangers	Annually and after each system activation	10.2.4.2
Heat (deluge valve house)	Daily/weekly	10.2.1.5, Chapter 13
Nozzles	Annually and after each system activation	10.2.1.1, 10.2.1.2, 10.2.1.6, 10.2.5.1, 10.2.5.2
Pipe		
~~Annually and after each system activation~~		
Quarterly	10.2.1.1, 10.2.1.2, 10.2.4, 10.2.4.1	
Pressure tank		10.2.10, Chapter 9
Steam driver		10.2.9, Chapter 8
Strainers	Manufacturer's instruction	10.2.7
Suction tanks		10.2.10, Chapter 9
Supports	Quarterly	10.2.1.1, 10.2.1.2, 10.2.4.2
Water supply piping		10.2.6.1, 10.2.6.2
UHSWSS — detectors	Monthly	10.4.2
UHSWSS — controllers	Each shift	10.4.3
UHSWSS — valves	Each shift	10.4.4
Operational Test		
Backflow preventer		Chapter 13
Check valves		Chapter 13
Control valves	Annually	13.3.3.1
Deluge valve		10.2.2, Chapter 13
Detection systems		*NFPA 72*
Detector check valve		Chapter 13
Electric motor		10.2.9, Chapter 8
Engine drive		10.2.9, Chapter 8
Fire pump		10.2.9, Chapter 8
Flushing	Annually	10.2.1.3, Section 10.3 (flushing of connection to riser, part of annual test)
Gravity tanks		10.2.10, Chapter 9
Main drain test	Annually	13.3.3.4
Manual release	Annually	10.2.1.3, 10.3.6
Nozzles	Annually	10.2.1.3, 10.2.1.6, Section 10.3
Pressure tank		Section 10.2, Chapter 9
Steam driver		10.2.9, Chapter 8
Strainers	Annually	10.2.1.3, 10.2.1.7, 10.2.7
Suction tanks		10.2.10, Chapter 9
Waterflow alarm	Quarterly	Chapter 5
Water spray system test	Annually	Section 10.3, Chapter 13
Water supply flow test		7.3.1
UHSWSS	Annually	Section 10.4
Valve status test		13.3.1.2.1
Maintenance		
Backflow preventer		Chapter 13
Check valves		Chapter 13
Control valves	Annually	10.2.1.4, Chapter 13
Deluge valve		10.2.2, Chapter 13
Detection systems		*NFPA 72*
Detector check valve		Chapter 13
Electric motor		10.2.9, Chapter 8
Engine drive		10.2.9, Chapter 8
Fire pump		10.2.9, Chapter 8
Gravity tanks		10.2.10, Chapter 9
Pressure tank		10.2.6, Chapter 9

Steam driver		10.2.9, Chapter 8
Strainers	Annually	10.2.1.4, 10.2.1.6, 10.2.7
Strainers (baskets/screen)	5 years	10.2.1.4, 10.2.1.7, A.10.2.7
Suction tanks		10.2.10, Chapter 9
Water spray system	Annually	10.2.1.4, Chapter 13

Statement of Problem and Substantiation for Public Input

Pipe inspection changed from annually to quarterly to make it consistent with fitting inspections.

Submitter Information Verification

Submitter Full Name: Robert Upson
Organization: National Fire Sprinkler Association
Affilliation: NFSA Engineering and Standards Committee
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jul 01 14:16:35 EDT 2014

Public Input No. 189-NFPA 25-2014 [Section No. 10.1.1.2]

10.1.1.2 *

Table 10.1.1.2 shall be used to determine the minimum required frequencies for inspection, testing, and maintenance.

Table 10.1.1.2 Summary of Water Spray Fixed System Inspection, Testing, and Maintenance

Item	Frequency	Reference
Inspection		
Backflow preventer		Chapter 13
Check valves		Chapter 13
Control valves	Weekly (sealed)	Chapter 13
Control valves	Monthly (locked, supervised)	Chapter 13
Deluge valve		10.2.2, Chapter 13
Detection systems		*NFPA 72* , *National Fire Alarm and Signaling Code*
Detector check valves		Chapter 13
Drainage	Quarterly	10.2.8
Electric motor		10.2.9, Chapter 8
Engine drive		10.2.9, Chapter 8
Fire pump		10.2.9, Chapter 8
Fittings	Quarterly	10.2.4, 10.2.4.1
Fittings (rubber-gasketed)	Quarterly	10.2.4.1, A.10.2.4.1
Gravity tanks		10.2.10, Chapter 9
Hangers	Annually and after each system activation	10.2.4.2
Heat (deluge valve house)	Daily/weekly	10.2.1.5, Chapter 13
Nozzles	Annually and after each system activation	10.2.1.1, 10.2.1.2, 10.2.1.6, 10.2.5.1, 10.2.5.2
Pipe	Annually and after each system activation	10.2.1.1, 10.2.1.2, 10.2.4, 10.2.4.1
Pressure tank		10.2.10, Chapter 9
Steam driver		10.2.9, Chapter 8
Strainers	Manufacturer's instruction	10.2.7
Suction tanks		10.2.10, Chapter 9
Supports	Quarterly	10.2.1.1, 10.2.1.2, 10.2.4.2
Water supply piping		10.2.6.1, 10.2.6.2
UHSWSS — detectors	Monthly	10.4.2
UHSWSS — controllers	Each shift	10.4.3
UHSWSS — valves	Each shift	10.4.4
Operational Test		
Backflow preventer		Chapter 13
Check valves		Chapter 13
Control valves	Annually	13.3.3.1
Deluge valve		10.2.2, Chapter 13
Detection systems		*NFPA 72*
Detector check valve		Chapter 13
Electric motor		10.2.9, Chapter 8
Engine drive		10.2.9, Chapter 8
Fire pump		10.2.9, Chapter 8
Flushing	Annually	10.2.1.3, Section 10.3 (flushing of connection to riser, part of annual test)
Gravity tanks		10.2.10, Chapter 9
Main drain test	Annually	13.3.3.4
Manual release	Annually	10.2.1.3, 10.3.6
Nozzles	Annually	10.2.1.3, 10.2.1.6, Section 10.3
Pressure tank		Section 10.2, Chapter 9
Steam driver		10.2.9, Chapter 8
Strainers	Annually	10.2.1.3, 10.2.1.7, 10.2.7
Suction tanks		10.2.10, Chapter 9
Waterflow alarm	Quarterly	Chapter 5
Water spray system test	Annually	Section 10.3, Chapter 13
Water supply flow test		7.3.1
UHSWSS	Annually	Section 10.4
Valve status test		13.3.1.2.1
Maintenance		
Backflow preventer		Chapter 13
Check valves		Chapter 13
Control valves	Annually	10.2.1.4, Chapter 13
Deluge valve		10.2.2, Chapter 13
Detection systems		*NFPA 72*
Detector check valve		Chapter 13
Electric motor		10.2.9, Chapter 8
Engine drive		10.2.9, Chapter 8
Fire pump		10.2.9, Chapter 8
Gravity tanks		10.2.10, Chapter 9
Pressure tank		10.2.6, Chapter 9
Steam driver		10.2.9, Chapter 8
Strainers	Annually	10.2.1.4, 10.2.1.6, 10.2.7

Item	Frequency	Reference
Strainers (baskets/screen)	5 years	10.2.1.4, 10.2.1.7, A.10.2.7
Suction tanks		10.2.10, Chapter 9
Water spray system	Annually	10.2.1.4, Chapter 13

Statement of Problem and Substantiation for Public Input

Links to proposed documentary/deficiency requirement for long term ITM intervals.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 180-NFPA 25-2014 [New Section after 4.3.5]	

Submitter Information Verification

Submitter Full Name: Robert Upson
Organization: National Fire Sprinkler Association
Affilliation: NFSA Engineering and Standards Committee
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jul 02 13:14:26 EDT 2014

Public Input No. 240-NFPA 25-2014 [Section No. 10.1.1.2]

10.1.1.2

Table 10.1.1.2 shall be used to determine the minimum required frequencies for inspection, testing, and maintenance.

Table 10.1.1.2 Summary of Water Spray Fixed System Inspection, Testing, and Maintenance

Item	Frequency	Reference
Inspection		
Backflow preventer		Chapter 13
Check valves		Chapter 13
Control valves	Weekly (sealed)	Chapter 13
Control valves	Monthly (locked, supervised)	Chapter 13
Deluge valve		10.2.2, Chapter 13
Detection systems		*NFPA 72* , *National Fire Alarm and Signaling Code*
Detector check valves		Chapter 13
Drainage	Quarterly	10.2.8
Electric motor		10.2.9, Chapter 8
Engine drive		10.2.9, Chapter 8
Fire pump		10.2.9, Chapter 8
Fittings	Quarterly	10.2.4, 10.2.4.1
Fittings (rubber-gasketed)	Quarterly	10.2.4.1, A.10.2.4.1
Gravity tanks		10.2.10, Chapter 9
Hangers and seismic braces	Annually and after each system activation	10.2.4.2
Heat (deluge valve house)	Daily/weekly	10.2.1.5, Chapter 13
Nozzles	Annually and after each system activation	10.2.1.1, 10.2.1.2, 10.2.1.6, 10.2.5.1, 10.2.5.2
Pipe	Annually and after each system activation	10.2.1.1, 10.2.1.2, 10.2.4, 10.2.4.1
Pressure tank		10.2.10, Chapter 9
Steam driver		10.2.9, Chapter 8
Strainers	Manufacturer's instruction	10.2.7
Suction tanks		10.2.10, Chapter 9
Supports	Quarterly	10.2.1.1, 10.2.1.2, 10.2.4.2
Water supply piping		10.2.6.1, 10.2.6.2
UHSWSS — detectors	Monthly	10.4.2
UHSWSS — controllers	Each shift	10.4.3
UHSWSS — valves	Each shift	10.4.4
Operational Test		
Backflow preventer		Chapter 13
Check valves		Chapter 13
Control valves	Annually	13.3.3.1
Deluge valve		10.2.2, Chapter 13
Detection systems		*NFPA 72*
Detector check valve		Chapter 13
Electric motor		10.2.9, Chapter 8
Engine drive		10.2.9, Chapter 8
Fire pump		10.2.9, Chapter 8
Flushing	Annually	10.2.1.3, Section 10.3 (flushing of connection to riser, part of annual test)
Gravity tanks		10.2.10, Chapter 9
Main drain test	Annually	13.3.3.4
Manual release	Annually	10.2.1.3, 10.3.6
Nozzles	Annually	10.2.1.3, 10.2.1.6, Section 10.3
Pressure tank		Section 10.2, Chapter 9
Steam driver		10.2.9, Chapter 8
Strainers	Annually	10.2.1.3, 10.2.1.7, 10.2.7
Suction tanks		10.2.10, Chapter 9
Waterflow alarm	Quarterly	Chapter 5
Water spray system test	Annually	Section 10.3, Chapter 13
Water supply flow test		7.3.1
UHSWSS	Annually	Section 10.4
Valve status test		13.3.1.2.1
Maintenance		
Backflow preventer		Chapter 13
Check valves		Chapter 13
Control valves	Annually	10.2.1.4, Chapter 13
Deluge valve		10.2.2, Chapter 13
Detection systems		*NFPA 72*
Detector check valve		Chapter 13
Electric motor		10.2.9, Chapter 8
Engine drive		10.2.9, Chapter 8
Fire pump		10.2.9, Chapter 8
Gravity tanks		10.2.10, Chapter 9
Pressure tank		10.2.6, Chapter 9
Steam driver		10.2.9, Chapter 8
Strainers	Annually	10.2.1.4, 10.2.1.6, 10.2.7

Item	Frequency	Reference
Strainers (baskets/screen)	5 years	10.2.1.4, 10.2.1.7, A.10.2.7
Suction tanks		10.2.10, Chapter 9
Water spray system	Annually	10.2.1.4, Chapter 13

Statement of Problem and Substantiation for Public Input

The inspection of seismic braces is required for sprinkler systems in Chapter 5 and should also be required for water spray systems. This proposal is a companion proposal to 10.2.4.2. NOTE: NFPA 25 uses the term "seismic braces" while NFPA 13 uses the term "sway braces".

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 239-NFPA 25-2014 [Section No. 10.2.4.2]	

Submitter Information Verification

Submitter Full Name: JAMES M FELD
Organization: University of California
Street Address:
City:
State:
Zip:
Submittal Date: Fri Jul 04 18:10:41 EDT 2014

Public Input No. 231-NFPA 25-2014 [Section No. 10.1.5]

10.1.5 Valves ~~and~~ , Valve Components, Trim, Alarm Devices, and Fire Department Connections.
Valves ~~and~~ , valve components, trim, alarm devices, and fire department connections shall be inspected, tested, and maintained in accordance with Chapter 13.

Statement of Problem and Substantiation for Public Input

This proposal is intended to direct the used to Chapter 13 for alarm devices. See proposed revision to 13.2.6.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 225-NFPA 25-2014 [Section No. 13.2.6]	

Submitter Information Verification

Submitter Full Name: JAMES M FELD
Organization: University of California
Street Address:
City:
State:
Zip:
Submittal Date: Fri Jul 04 14:01:07 EDT 2014

Public Input No. 157-NFPA 25-2014 [Section No. 10.2.4.1]

10.2.4.1 * Piping and Fittings.
System piping and fittings shall be inspected for the following:

(1) Mechanical damage (e.g., broken piping or cracked fittings)

(2) External conditions (e.g., missing or damaged paint or coatings, rust, and corrosion)

(3) Misalignment or trapped sections

(4) ~~Low~~ Condition of low -point drains (automatic or manual)

(5) Location of rubber-gasketed fittings

Statement of Problem and Substantiation for Public Input

This P.I. clarifies that the intent of section 10.2.4.1(4) is to inspect the condition of any installed low-point drains. As written it is not clear what is being inspected in regards to these low point drains.

Submitter Information Verification

Submitter Full Name: Roland Asp
Organization: National Fire Sprinkler Association
Affilliation: NFSA E&S Committee
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jun 30 10:51:47 EDT 2014

Public Input No. 175-NFPA 25-2014 [Section No. 10.2.4.1]

10.2.4.1 * Piping and Fittings.

System piping and fittings shall be inspected for the following:

(1) Mechanical damage (e.g., broken piping or cracked fittings)

(2) External conditions (e.g., missing or damaged paint or coatings, rust, and corrosion)

(3) Misalignment or trapped sections

(4) Low-point drains (automatic or manual)

(5) - ~~Location of~~ Protection for rubber-gasketed fittings

Statement of Problem and Substantiation for Public Input

Clarifies the objective of this part of the inspection

Submitter Information Verification

Submitter Full Name: Robert Upson
Organization: National Fire Sprinkler Association
Affilliation: NFSA Engineering and Standards Committee
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jul 01 14:20:48 EDT 2014

Public Input No. 173-NFPA 25-2014 [Section No. 10.2.4.2]

10.2.4.2 * . Hangers ~~and~~ , Braces, and Supports.
Hangers ~~and~~ , braces, and supports shall be inspected for the following and repaired or replaced as necessary:

(1) Condition (e.g., missing or damaged paint or coating, rust, and corrosion)

(2) Secure attachment to structural supports and piping

(3) Damaged or missing hangers

Statement of Problem and Substantiation for Public Input

Clarifies that braces are part of the support system and should be inspected regularly.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 172-NFPA 25-2014 [Section No. 10.1.1.2]	Adds Braces to table of inspection frequencies

Submitter Information Verification

Submitter Full Name: Robert Upson
Organization: National Fire Sprinkler Association
Affilliation: NFSA Engineering and Standards Committee
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jul 01 14:13:57 EDT 2014

Public Input No. 239-NFPA 25-2014 [Section No. 10.2.4.2]

10.2.4.2 * . Hangers ~~and~~ , Seismic Braces, and Supports.

Hangers ~~and~~ , seismic braces, and supports shall be inspected for the following and repaired or replaced as necessary:

(1) Condition (e.g., missing or damaged paint or coating, rust, and corrosion)

(2) Secure attachment to structural supports and piping

(3) Damaged or missing hangers, seismic braces, and supports

Statement of Problem and Substantiation for Public Input

The inspection of seismic braces is required for sprinkler systems in Chapter 5 and should also be required for water spray systems. NOTE: NFPA 25 uses the term "seismic braces" while NFPA 13 uses the term "sway braces".

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 240-NFPA 25-2014 [Section No. 10.1.1.2]	

Submitter Information Verification

Submitter Full Name: JAMES M FELD
Organization: University of California
Street Address:
City:
State:
Zip:
Submittal Date: Fri Jul 04 18:06:18 EDT 2014

Public Input No. 111-NFPA 25-2014 [Section No. 11.1.1.2]

11.1.1.2

Table 11.1.1.2 shall be used to determine the minimum required frequencies for inspection, testing, and maintenance.

Table 11.1.1.2 Summary of Foam-Water Sprinkler System Inspection, Testing, and Maintenance

System/Component	Frequency	Reference
Inspection		
Discharge device location (sprinkler)	Annually	11.2.5
Discharge device location (spray nozzle)	Monthly	11.2.5
Discharge device position (sprinkler)	Annually	11.2.5
Discharge device position (spray nozzle)	Monthly	11.2.5
Foam concentrate strainer(s)	Quarterly	11.2.7.2
Drainage in system area	Quarterly	11.2.8
Proportioning system(s) — all	Monthly	11.2.9
Pipe corrosion	Annually	11.2.3
Pipe damage	Annually	11.2.3
Fittings corrosion	Annually	11.2.3
Fittings damage	Annually	11.2.3
Hangers/supports	Annually	11.2.4
Waterflow devices	Quarterly	11.2.1
Water supply tank(s)		Chapter 9
Fire pump(s)		Chapter 8
Water supply piping		11.2.6.1
Control valve(s)	Weekly/monthly	—
Deluge/preaction valve(s)		11.2.1, Chapter 13
Detection system	See *NFPA 72*, *National Fire Alarm and Signaling Code*	11.2.2
Test		
Discharge device location	Annually	11.3.2.6
Discharge device position	Annually	11.3.2.6
Discharge device obstruction	Annually	11.3.2.6
Foam concentrate strainer(s)	Annually	11.2.7.2
Proportioning system(s) — all	Annually	11.2.9
Complete foam-water system(s)	Annually	11.3.3
Foam-water solution	Annually	11.3.5
Manual actuation device(s)	Annually	11.3.4
Backflow preventer(s)	Annually	Chapter 13
Fire pump(s)	See Chapter 8	—
Waterflow devices	Quarterly/semiannually	11.3.1.3
Water supply piping	Annually	Chapter 10
Control valve(s)	See Chapter 13	—
Strainer(s) — mainline	~~See Chapter 10~~ 5 years	11.2.7.1
Deluge/preaction valve(s)	See Chapter 13	11.2.1
Detection system	See *NFPA 72*	11.2.2
Backflow preventer(s)	See Chapter 13	—
Water supply tank(s)	See Chapter 9	—
Water supply flow test	5 years	7.3.1
Valve status test		13.3.1.2.1
Maintenance		
Foam concentrate pump operation	Monthly	11.4.6.1, 11.4.7.1
Foam concentrate strainer(s)	Quarterly	Section 11.4
Foam concentrate samples	Annually	11.2.10
Proportioning system(s) standard pressure type		
Ball drip (automatic type) drain valves	5 years	11.4.3.1
Foam concentrate tank — drain and flush	10 years	11.4.3.2
Corrosion and hydrostatic test	10 years	11.4.3.3
Bladder tank type		
Sight glass	10 years	11.4.4.1
Foam concentrate tank — hydrostatic test	10 years	11.4.4.2
Line type		
Foam concentrate tank — corrosion and pickup pipes	10 years	11.4.5.1
Foam concentrate tank — drain and flush	10 years	11.4.5.2
Standard balanced pressure type		
Foam concentrate pump(s)	5 years *(see Note)*	11.4.6.2
Balancing valve diaphragm	5 years	11.4.6.3
Foam concentrate tank	10 years	11.4.6.4
In-line balanced pressure type		
Foam concentrate pump(s)	5 years *(see Note)*	11.4.7.2
Balancing valve diaphragm	5 years	11.4.7.3
Foam concentrate tank	10 years	11.4.7.4
Pressure vacuum vents	5 years	11.4.8
Water supply tank(s)	See Chapter 9	—
Fire pump(s)	See Chapter 8	—

System/Component	Frequency	Reference
Water supply	Annually	11.2.6.1
Backflow preventer(s)	See Chapter 13	—
Detector check valve(s)	See Chapter 13	—
Check valve(s)	See Chapter 13	—
Control valve(s)	See Chapter 13	—
Deluge/preaction valves	See Chapter 13	11.2.1
Strainer(s) — mainline	See Chapter 10	—
Detection system	See *NFPA 72*	11.2.2

Note: Also refer to manufacturer's instructions and frequency. Maintenance intervals other than preventive maintenance are not provided, as they depend on the results of the visual inspections and operational tests. For foam-water systems in aircraft hangars, refer to the inspection, test, and maintenance requirements of NFPA 409, *Standard on Aircraft Hangars*, Table 11.1.1.

Additional Proposed Changes

File Name	Description	Approved
LGK_NFPA_25-2014_PI_11-2-7-1.pdf	PI Form	

Statement of Problem and Substantiation for Public Input

Instead of a reference to Chapter 10, the directions for the ITM for strainers should stand alone in Chapter 11, the same as in Chapters 7, 9 and 10. Alternately, the direction for strainers in all chapters could be moved to Chapter 13.

Submitter Information Verification

Submitter Full Name: Larry Keeping
Organization: Professional Loss Control
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jun 05 12:50:37 EDT 2014

Public Input No. 119-NFPA 25-2014 [Section No. 11.1.1.2]

11.1.1.2

Table 11.1.1.2 shall be used to determine the minimum required frequencies for inspection, testing, and maintenance.

Table 11.1.1.2 Summary of Foam-Water Sprinkler System Inspection, Testing, and Maintenance

System/Component	Frequency	Reference
Inspection		
Discharge device location (sprinkler)	Annually	11.2.5
Discharge device location (spray nozzle)	Monthly	11.2.5
Discharge device position (sprinkler)	Annually	11.2.5
Discharge device position (spray nozzle)	Monthly	11.2.5
Foam concentrate strainer(s)	Quarterly	11.2.7.2
Drainage in system area	Quarterly	11.2.8
Proportioning system(s) — all	Monthly	11.2.9
Pipe corrosion	Annually	11.2.3
Pipe damage	Annually	11.2.3
Fittings corrosion	Annually	11.2.3
Fittings damage	Annually	11.2.3
Hangers/supports	Annually	11.2.4
Waterflow devices	Quarterly	11.2.1
Water supply tank(s)		Chapter 9
Fire pump(s)		Chapter 8
Water supply piping		11.2.6.1
Control valve(s)	Weekly/monthly	—
Deluge/preaction valve(s)		11.2.1, Chapter 13
Detection system	See *NFPA 72*, *National Fire Alarm and Signaling Code*	11.2.2
Test		
Discharge device location	Annually	11.3.2.6
Discharge device position	Annually	11.3.2.6
Discharge device obstruction	Annually	11.3.2.6
~~Foam concentrate strainer(s)~~	~~Annually~~	~~11.2.7.2~~
Proportioning system(s) — all	Annually	11.2.9
~~Complete foam-water system(s)~~ Multiple systems	Annually	11.3.3
Foam-water solution	Annually	11.3.5
Manual actuation device(s)	Annually	11.3.4
Backflow preventer(s)	Annually	Chapter 13
Fire pump(s)	See Chapter 8	—
Waterflow devices	Quarterly/semiannually	11.3.1.3
Water supply piping	Annually	Chapter 10
Control valve(s)	See Chapter 13	—
Strainer(s) — mainline	See Chapter 10	11.2.7.1
Deluge/preaction valve(s)	See Chapter 13	11.2.1
Detection system	See *NFPA 72*	11.2.2
Backflow preventer(s)	See Chapter 13	—
Water supply tank(s)	See Chapter 9	—
Water supply flow test	5 years	7.3.1
Valve status test		13.3.1.2.1
Maintenance		
Foam concentrate pump operation	Monthly	11.4.6.1, 11.4.7.1
Foam concentrate strainer(s)	Quarterly	Section 11.4
Foam concentrate samples	Annually	11.2.10
Proportioning system(s) standard pressure type		
Ball drip (automatic type) drain valves	5 years	11.4.3.1
Foam concentrate tank — drain and flush	10 years	11.4.3.2
Corrosion and hydrostatic test	10 years	11.4.3.3
Bladder tank type		
Sight glass	10 years	11.4.4.1
Foam concentrate tank — hydrostatic test	10 years	11.4.4.2
Line type		
Foam concentrate tank — corrosion and pickup pipes	10 years	11.4.5.1
Foam concentrate tank — drain and flush	10 years	11.4.5.2
Standard balanced pressure type		
Foam concentrate pump(s)	5 years *(see Note)*	11.4.6.2
Balancing valve diaphragm	5 years	11.4.6.3
Foam concentrate tank	10 years	11.4.6.4
In-line balanced pressure type		
Foam concentrate pump(s)	5 years *(see Note)*	11.4.7.2
Balancing valve diaphragm	5 years	11.4.7.3
Foam concentrate tank	10 years	11.4.7.4
Pressure vacuum vents	5 years	11.4.8
Water supply tank(s)	See Chapter 9	—
Fire pump(s)	See Chapter 8	—

System/Component	Frequency	Reference
Water supply	Annually	11.2.6.1
Backflow preventer(s)	See Chapter 13	—
Detector check valve(s)	See Chapter 13	—
Check valve(s)	See Chapter 13	—
Control valve(s)	See Chapter 13	—
Deluge/preaction valves	See Chapter 13	11.2.1
Strainer(s) — mainline	See Chapter 10	—
Detection system	See *NFPA 72*	11.2.2

Note: Also refer to manufacturer's instructions and frequency. Maintenance intervals other than preventive maintenance are not provided, as they depend on the results of the visual inspections and operational tests. For foam-water systems in aircraft hangars, refer to the inspection, test, and maintenance requirements of NFPA 409, *Standard on Aircraft Hangars*, Table 11.1.1.

Additional Proposed Changes

File Name	Description	Approved
LGK_NFPA_25-2014_PI_Table_11-1-1-2.pdf	PI Form	

Statement of Problem and Substantiation for Public Input

These changes are proposed because:

- As with all water-based fire protection systems, gauges need to be inspected regularly, so Table 11.1.1.2 should reflect this.
- Section 11.2.7.2 is not a testing requirement, it is a provision for visual inspection to ensure that the blow-down valve is closed and plugged.
- Editorial, to clarify the intent and to align the text in Table 11.1.1.2 with the text in the requirement of Section 11.3.3.

Submitter Information Verification

Submitter Full Name: Larry Keeping
Organization: Professional Loss Control
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jun 05 13:14:03 EDT 2014

Public Input No. 190-NFPA 25-2014 [Section No. 11.1.1.2]

11.1.1.2 *

Table 11.1.1.2 shall be used to determine the minimum required frequencies for inspection, testing, and maintenance.

Table 11.1.1.2 Summary of Foam-Water Sprinkler System Inspection, Testing, and Maintenance

System/Component	Frequency	Reference
Inspection		
Discharge device location (sprinkler)	Annually	11.2.5
Discharge device location (spray nozzle)	Monthly	11.2.5
Discharge device position (sprinkler)	Annually	11.2.5
Discharge device position (spray nozzle)	Monthly	11.2.5
Foam concentrate strainer(s)	Quarterly	11.2.7.2
Drainage in system area	Quarterly	11.2.8
Proportioning system(s) — all	Monthly	11.2.9
Pipe corrosion	Annually	11.2.3
Pipe damage	Annually	11.2.3
Fittings corrosion	Annually	11.2.3
Fittings damage	Annually	11.2.3
Hangers/supports	Annually	11.2.4
Waterflow devices	Quarterly	11.2.1
Water supply tank(s)		Chapter 9
Fire pump(s)		Chapter 8
Water supply piping		11.2.6.1
Control valve(s)	Weekly/monthly	—
Deluge/preaction valve(s)		11.2.1, Chapter 13
Detection system	See *NFPA 72* , *National Fire Alarm and Signaling Code*	11.2.2
Test		
Discharge device location	Annually	11.3.2.6
Discharge device position	Annually	11.3.2.6
Discharge device obstruction	Annually	11.3.2.6
Foam concentrate strainer(s)	Annually	11.2.7.2
Proportioning system(s) — all	Annually	11.2.9
Complete foam-water system(s)	Annually	11.3.3
Foam-water solution	Annually	11.3.5
Manual actuation device(s)	Annually	11.3.4
Backflow preventer(s)	Annually	Chapter 13
Fire pump(s)	See Chapter 8	—
Waterflow devices	Quarterly/semiannually	11.3.1.3
Water supply piping	Annually	Chapter 10
Control valve(s)	See Chapter 13	—
Strainer(s) — mainline	See Chapter 10	11.2.7.1
Deluge/preaction valve(s)	See Chapter 13	11.2.1
Detection system	See *NFPA 72*	11.2.2
Backflow preventer(s)	See Chapter 13	—
Water supply tank(s)	See Chapter 9	—
Water supply flow test	5 years	7.3.1
Valve status test		13.3.1.2.1
Maintenance		
Foam concentrate pump operation	Monthly	11.4.6.1, 11.4.7.1
Foam concentrate strainer(s)	Quarterly	Section 11.4
Foam concentrate samples	Annually	11.2.10
Proportioning system(s) standard pressure type		
Ball drip (automatic type) drain valves	5 years	11.4.3.1
Foam concentrate tank — drain and flush	10 years	11.4.3.2
Corrosion and hydrostatic test	10 years	11.4.3.3
Bladder tank type		
Sight glass	10 years	11.4.4.1
Foam concentrate tank — hydrostatic test	10 years	11.4.4.2
Line type		
Foam concentrate tank — corrosion and pickup pipes	10 years	11.4.5.1
Foam concentrate tank — drain and flush	10 years	11.4.5.2
Standard balanced pressure type		
Foam concentrate pump(s)	5 years *(see Note)*	11.4.6.2
Balancing valve diaphragm	5 years	11.4.6.3
Foam concentrate tank	10 years	11.4.6.4
In-line balanced pressure type		
Foam concentrate pump(s)	5 years *(see Note)*	11.4.7.2
Balancing valve diaphragm	5 years	11.4.7.3
Foam concentrate tank	10 years	11.4.7.4
Pressure vacuum vents	5 years	11.4.8
Water supply tank(s)	See Chapter 9	—
Fire pump(s)	See Chapter 8	—

System/Component	Frequency	Reference
Water supply	Annually	11.2.6.1
Backflow preventer(s)	See Chapter 13	—
Detector check valve(s)	See Chapter 13	—
Check valve(s)	See Chapter 13	—
Control valve(s)	See Chapter 13	—
Deluge/preaction valves	See Chapter 13	11.2.1
Strainer(s) — mainline	See Chapter 10	—
Detection system	See *NFPA 72*	11.2.2

Note: Also refer to manufacturer's instructions and frequency. Maintenance intervals other than preventive maintenance are not provided, as they depend on the results of the visual inspections and operational tests. For foam-water systems in aircraft hangars, refer to the inspection, test, and maintenance requirements of NFPA 409, *Standard on Aircraft Hangars*, Table 11.1.1.

Statement of Problem and Substantiation for Public Input

Links to proposed documentary/deficiency requirement for long term ITM intervals.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 180-NFPA 25-2014 [New Section after 4.3.5]	

Submitter Information Verification

Submitter Full Name: Robert Upson
Organization: National Fire Sprinkler Association
Affilliation: NFSA Engineering and Standards Committee
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jul 02 13:15:37 EDT 2014

Public Input No. 226-NFPA 25-2014 [Section No. 11.1.1.2]

11.1.1.2

Table 11.1.1.2 shall be used to determine the minimum required frequencies for inspection, testing, and maintenance.

Table 11.1.1.2 Summary of Foam-Water Sprinkler System Inspection, Testing, and Maintenance

System/Component	Frequency	Reference
Inspection		
Discharge device location (sprinkler)	Annually	11.2.5
Discharge device location (spray nozzle)	Monthly	11.2.5
Discharge device position (sprinkler)	Annually	11.2.5
Discharge device position (spray nozzle)	Monthly	11.2.5
Foam concentrate strainer(s)	Quarterly	11.2.7.2
Drainage in system area	Quarterly	11.2.8
Proportioning system(s) — all	Monthly	11.2.9
Pipe corrosion	Annually	11.2.3
Pipe damage	Annually	11.2.3
Fittings corrosion	Annually	11.2.3
Fittings damage	Annually	11.2.3
Hangers/supports	Annually	11.2.4
Waterflow devices		
~~Quarterly 11.2.1~~		
Chapter 13	Chapter 13	
Water supply tank(s)		Chapter 9
Fire pump(s)		Chapter 8
Water supply piping		11.2.6.1
Control valve(s)	Weekly/monthly	
~~— 11.3.1.3~~		
Chapter 13		
Deluge/preaction valve(s)		11.2.1, Chapter 13
Detection system	See *NFPA 72* , *National Fire Alarm and Signaling Code*	11.2.2
Test		
Discharge device location	Annually	11.3.2.6
Discharge device position	Annually	11.3.2.6
Discharge device obstruction	Annually	11.3.2.6
Foam concentrate strainer(s)	Annually	11.2.7.2
Proportioning system(s) — all	Annually	11.2.9
Complete foam-water system(s)	Annually	11.3.3
Foam-water solution	Annually	11.3.5
Manual actuation device(s)	Annually	11.3.4
Backflow preventer(s)	Annually	Chapter 13
Fire pump(s)	See Chapter 8	—
Waterflow devices		
~~Quarterly/semiannually~~		
Chapter 13	Chapter 13	
Water supply piping	Annually	Chapter 10
Control valve(s)	See Chapter 13	
—		
Chapter 13		
Strainer(s) — mainline	See Chapter 10	11.2.7.1
Deluge/preaction valve(s)	See Chapter 13	11.2.1
Detection system	See *NFPA 72*	11.2.2
Backflow preventer(s)	See Chapter 13	—
Water supply tank(s)	See Chapter 9	—
Water supply flow test	5 years	7.3.1
Valve status test		13.3.1.2.1
Maintenance		
Foam concentrate pump operation	Monthly	11.4.6.1, 11.4.7.1
Foam concentrate strainer(s)	Quarterly	Section 11.4
Foam concentrate samples	Annually	11.2.10
Proportioning system(s) standard pressure type		
Ball drip (automatic type) drain valves	5 years	11.4.3.1
Foam concentrate tank — drain and flush	10 years	11.4.3.2
Corrosion and hydrostatic test	10 years	11.4.3.3
Bladder tank type		
Sight glass	10 years	11.4.4.1
Foam concentrate tank — hydrostatic test	10 years	11.4.4.2
Line type		
Foam concentrate tank — corrosion and pickup pipes	10 years	11.4.5.1
Foam concentrate tank — drain and flush	10 years	11.4.5.2
Standard balanced pressure type		
Foam concentrate pump(s)	5 years *(see Note)*	11.4.6.2
Balancing valve diaphragm	5 years	11.4.6.3

Foam concentrate tank	10 years	11.4.6.4
In-line balanced pressure type		
Foam concentrate pump(s)	5 years *(see Note)*	11.4.7.2
Balancing valve diaphragm	5 years	11.4.7.3
Foam concentrate tank	10 years	11.4.7.4
Pressure vacuum vents	5 years	11.4.8
Water supply tank(s)	See Chapter 9	—
Fire pump(s)	See Chapter 8	—
Water supply	Annually	11.2.6.1
Backflow preventer(s)	See Chapter 13	—
Detector check valve(s)	See Chapter 13	—
Check valve(s)	See Chapter 13	—
Control valve(s)	See Chapter 13	—
Deluge/preaction valves	See Chapter 13	11.2.1
Strainer(s) — mainline	See Chapter 10	—
Detection system	See *NFPA 72*	11.2.2

Note: Also refer to manufacturer's instructions and frequency. Maintenance intervals other than preventive maintenance are not provided, as they depend on the results of the visual inspections and operational tests. For foam-water systems in aircraft hangars, refer to the inspection, test, and maintenance requirements of NFPA 409, *Standard on Aircraft Hangars*, Table 11.1.1.

Statement of Problem and Substantiation for Public Input

This proposal is intended to shift the ITM requirements for waterflow devices to Chapter 13.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 225-NFPA 25-2014 [Section No. 13.2.6]	
Public Input No. 227-NFPA 25-2014 [Sections 11.1.4.1.1, 11.1.4.1.2, 11.1.4.1.3]	
Public Input No. 228-NFPA 25-2014 [Sections 11.3.1.1, 11.3.1.2, 11.3.1.3]	

Submitter Information Verification

Submitter Full Name: JAMES M FELD
Organization: University of California
Street Address:
City:
State:
Zip:
Submittal Date: Fri Jul 04 13:03:46 EDT 2014

Public Input No. 55-NFPA 25-2014 [Section No. 11.1.1.2]

11.1.1.2

Table 11.1.1.2 shall be used to determine the minimum required frequencies for inspection, testing, and maintenance.

Table 11.1.1.2 Summary of Foam-Water Sprinkler System Inspection, Testing, and Maintenance

System/Component	Frequency	Reference
Inspection		
Discharge device location (sprinkler)	Annually	11.2.~~5~~ 6
Discharge device location (spray nozzle)	Monthly	11.2.~~5~~ 6
Discharge device position (sprinkler)	Annually	11.2.~~5~~ 6
Discharge device position (spray nozzle)	Monthly	11.2.~~5~~ 6
Foam concentrate strainer(s)	Quarterly	11.2.~~7~~ 8 .2
Drainage in system area	Quarterly	11.2.~~8~~ 9
Proportioning system(s) — all	Monthly	11.2.~~9~~ 10
Pipe corrosion	Annually	11.2.~~3~~ 4
Pipe damage	Annually	11.2.~~3~~ 4
Fittings corrosion	Annually	11.2.~~3~~ 4
Fittings damage	Annually	11.2.~~3~~ 4
Hangers/supports	Annually	11.2.4 5
Waterflow devices	Quarterly	11.2.~~1~~ 2
Water supply tank(s)		Chapter 9
Fire pump(s)		Chapter 8
Water supply piping		11.2.~~6~~ 7 .1
Control valve(s)	Weekly/monthly	—
Deluge/preaction valve(s)		11.2.1, Chapter 13
Detection system	See *NFPA 72*, *National Fire Alarm and Signaling Code*	11.2.~~2~~ 3
Test		
Discharge device location	Annually	11.3.2.6
Discharge device position	Annually	11.3.2.6
Discharge device obstruction	Annually	11.3.2.6
Foam concentrate strainer(s)	Annually	11.2.7.2
Proportioning system(s) — all	Annually	11.2.9
Complete foam-water system(s)	Annually	11.3.3
Foam-water solution	Annually	11.3.5
Manual actuation device(s)	Annually	11.3.4
Backflow preventer(s)	Annually	Chapter 13
Fire pump(s)	See Chapter 8	—
Waterflow devices	Quarterly/semiannually	11.3.1.1, 11. 3.1.2
Water supply piping	Annually	Chapter 10
Control valve(s)	See Chapter 13	—
Strainer(s) — mainline	See Chapter 10	11.2.7.1
Deluge/preaction valve(s)	See Chapter 13	11.2.1
Detection system	See *NFPA 72*	11.2.~~2~~ 3
Backflow preventer(s)	See Chapter 13	—
Water supply tank(s)	See Chapter 9	—
Water supply flow test	5 years	7.3.1
Valve status test		13.3.1.2.1
Maintenance		
Foam concentrate pump operation	Monthly	11.4.6.1, 11.4.7.1
Foam concentrate strainer(s)	Quarterly	Section 11.4
Foam concentrate samples	Annually	11.2.~~10~~ 11
Proportioning system(s) standard pressure type		
Ball drip (automatic type) drain valves	5 years	11.4.3.1
Foam concentrate tank — drain and flush	10 years	11.4.3.2
Corrosion and hydrostatic test	10 years	11.4.3.3
Bladder tank type		
Sight glass	10 years	11.4.4.1
Foam concentrate tank — hydrostatic test	10 years	11.4.4.2
Line type		
Foam concentrate tank — corrosion and pickup pipes	10 years	11.4.5.1
Foam concentrate tank — drain and flush	10 years	11.4.5.2
Standard balanced pressure type		
Foam concentrate pump(s)	5 years *(see Note)*	11.4.6.2
Balancing valve diaphragm	5 years	11.4.6.3
Foam concentrate tank	10 years	11.4.6.4
In-line balanced pressure type		
Foam concentrate pump(s)	5 years *(see Note)*	11.4.7.2
Balancing valve diaphragm	5 years	11.4.7.3
Foam concentrate tank	10 years	11.4.7.4
Pressure vacuum vents	5 years	11.4.8
Water supply tank(s)	See Chapter 9	—
Fire pump(s)	See Chapter 8	—

System/Component	Frequency	Reference
Water supply	Annually	11.2.~~6~~ 7 .1
Backflow preventer(s)	See Chapter 13	—
Detector check valve(s)	See Chapter 13	—
Check valve(s)	See Chapter 13	—
Control valve(s)	See Chapter 13	—
Deluge/preaction valves	See Chapter 13	11.2.1
Strainer(s) — mainline	See Chapter 10	—
Detection system	See *NFPA 72*	11.2.~~2~~ 3

Note: Also refer to manufacturer's instructions and frequency. Maintenance intervals other than preventive maintenance are not provided, as they depend on the results of the visual inspections and operational tests. For foam-water systems in aircraft hangars, refer to the inspection, test, and maintenance requirements of NFPA 409, *Standard on Aircraft Hangars*, Table 11.1.1.

Statement of Problem and Substantiation for Public Input

Revision of Table 11.1.1.2 based on the related Public Inputs

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 52-NFPA 25-2014 [Sections 11.3.1.1, 11.3.1.2, 11.3.1.3]	Waterflow devices
Public Input No. 53-NFPA 25-2014 [Sections 11.2.2, 11.2.3, 11.2.4, 11.2.5, 11.2.6, 11.2.7, 11...]	Waterflow devices

Submitter Information Verification

Submitter Full Name: KEVIN KAYE
Organization: PROFESSIONAL LOSS CONTROL
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jan 23 08:38:04 EST 2014

Public Input No. 227-NFPA 25-2014 [Sections 11.1.4.1.1, 11.1.4.1.2, 11.1.4.1.3]

Sections 11.1.4.1.1, 11.1.4.1.2, 11.1.4.1.3

~~11.1.4.1.1 –~~

~~Mechanical waterflow devices, including but not limited to water motor gongs, shall be tested quarterly.~~

~~11.1.4.1.2 –~~

~~Valve-type and pressure switch–type waterflow devices shall be tested semiannually.~~

~~11.1.4.1.3 –~~

~~Waterflow devices shall be inspected quarterly to verify that they are free of physical damage.~~

Statement of Problem and Substantiation for Public Input

This proposal is intended to shift the ITM requirements for waterflow devices to Chapter 13.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 225-NFPA 25-2014 [Section No. 13.2.6]	
Public Input No. 226-NFPA 25-2014 [Section No. 11.1.1.2]	
Public Input No. 228-NFPA 25-2014 [Sections 11.3.1.1, 11.3.1.2, 11.3.1.3]	

Submitter Information Verification

Submitter Full Name: JAMES M FELD
Organization: University of California
Street Address:
City:
State:
Zip:
Submittal Date: Fri Jul 04 13:08:58 EDT 2014

Public Input No. 51-NFPA 25-2014 [Sections 11.1.4.1.1, 11.1.4.1.2, 11.1.4.1.3]

~~**Sections 11.1.4.1.1, 11.1.4.1.2, 11.1.4.1.3**~~

~~11.1.4.1.1 –~~

~~Mechanical waterflow devices, including but not limited to water motor gongs, shall be tested quarterly.~~

~~11.1.4.1.2 –~~

~~Valve-type and pressure switch–type waterflow devices shall be tested semiannually.~~

~~11.1.4.1.3 –~~

~~Waterflow devices shall be inspected quarterly to verify that they are free of physical damage.~~

Statement of Problem and Substantiation for Public Input

The waterflow device requirements of clause 11.1.4.1.1, 11.1.4.1.2, and 11.1.4.1.3 are specific inspection and test requirements. The inspection requirement should be listed in Section 11.2, and the test requirements should be listed in Section 11.3. By moving the waterflow device requirements to the inspection and test sections would improve the organization of Chapter 11.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 52-NFPA 25-2014 [Sections 11.3.1.1, 11.3.1.2, 11.3.1.3]	
Public Input No. 53-NFPA 25-2014 [Sections 11.2.2, 11.2.3, 11.2.4, 11.2.5, 11.2.6, 11.2.7, 11...]	
Public Input No. 54-NFPA 25-2014 [Section No. 11.1.4.2]	
Public Input No. 56-NFPA 25-2014 [New Section after 11.2.1]	

Submitter Information Verification

Submitter Full Name: KEVIN KAYE
Organization: PROFESSIONAL LOSS CONTROL
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jan 23 08:03:06 EST 2014

Public Input No. 54-NFPA 25-2014 [Section No. 11.1.4.2]

11.1.4.1. 2– _
The inspection shall verify that all components, including foam concentrate discharge devices and proportioning equipment, are installed in accordance with their listing.

Statement of Problem and Substantiation for Public Input

If clauses 11.1.4.1.1, 11.1.4.1.2 and 11.1.4.1.3 are deleted, clause number 11.1.4.2 would have to be revised.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 51-NFPA 25-2014 [Sections 11.1.4.1.1, 11.1.4.1.2, 11.1.4.1.3]	

Submitter Information Verification

Submitter Full Name: KEVIN KAYE
Organization: PROFESSIONAL LOSS CONTROL
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jan 23 08:34:29 EST 2014

Public Input No. 56-NFPA 25-2014 [New Section after 11.2.1]

11.2.2 Waterflow Devices.
Waterflow devices shall be inspected quarterly to verify that they are free of physical damage.

Statement of Problem and Substantiation for Public Input

by placing the waterflow device inspection requirement in the "Inspection" Section (11.2), it would improve the organization of Chapter 11.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 51-NFPA 25-2014 [Sections 11.1.4.1.1, 11.1.4.1.2, 11.1.4.1.3]	Waterflow Devices

Submitter Information Verification

Submitter Full Name: KEVIN KAYE
Organization: PROFESSIONAL LOSS CONTROL
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jan 23 08:52:38 EST 2014

Public Input No. 53-NFPA 25-2014 [Sections 11.2.2, 11.2.3, 11.2.4, 11.2.5, 11.2.6, 11.2.7, 11...]

Sections 11.2.2, 11.2.3, 11.2.4, 11.2.5, 11.2.6, 11.2.7, 11.2.8, 11.2.9, 11.2.10

11.2.

~~2~~

3 _ Automatic Detection Equipment.

Automatic detection equipment shall be inspected, tested, and maintained in accordance with *NFPA 72* , *National Fire Alarm and Signaling Code* , to ensure that the detectors are in place, securely fastened, and protected from corrosion, weather, and mechanical damage and that the communication wiring, control panels, or pneumatic tubing system is functional.

11.2.3 – 4 _ System Piping and Fittings.

System piping and fittings shall be inspected for the following:

(1) Mechanical damage (e.g., broken piping or cracked fittings)

(2) External conditions (e.g., missing or damaged paint or coatings, rust, and corrosion)

(3) Misalignment or trapped sections

(4) Low-point drains (automatic or manual)

(5) Location and condition of rubber-gasketed fittings

11.2.4 – 5 _ Hangers and Supports.

Hangers and supports shall be inspected for the following and repaired or replaced as necessary:

(1) Condition (e.g., missing or damaged paint or coating, rust, and corrosion)

(2) Secure attachment to structural supports and piping

(3) Damaged or missing hangers

11.2.~~5~~ 6 * Foam-Water Discharge Devices.

11.2.~~5~~ 6 .1

Foam-water discharge devices shall be inspected visually and maintained to ensure that they are in place, continue to be aimed or pointed in the direction intended in the system design, and are free from external loading and corrosion.

11.2.~~5~~ 6 .2

Where caps or plugs are required, the inspection shall confirm they are in place and free to operate as intended.

11.2.~~5~~ 6 .3

Misaligned discharge devices shall be adjusted (aimed) by visual means, and the discharge patterns shall be inspected at the next scheduled flow test.

11.2.~~5~~ 6 .4*

Inspection shall verify that unlisted combinations of discharge devices and foam concentrate have not been substituted.

11.2.~~6~~ – 7 _ Water Supply.

11.2.~~6~~ 7 .1

The dependability of the water supply shall be ensured by regular inspection and maintenance, whether furnished by a municipal source, on-site storage tanks, a fire pump, or private underground piping systems.

11.2.~~6~~ 7 .2*

Water supply piping shall be maintained free of internal obstructions.

11.2.~~7~~ – 8 _ Strainers.

11.2.~~7~~ 8 .1

Mainline and individual discharge device strainers (basket or screen) shall be inspected in accordance with the provisions of Chapter 10.

11.2.~~7~~ 8 .2

Foam concentrate strainers shall be inspected visually to ensure the blow-down valve is closed and plugged.

11.2.~~7~~ 8 .3

Baskets or screens shall be removed and inspected after each operation or flow test.

11.2.~~8~~ – 9 _ Drainage.

The area beneath and surrounding a foam-water spray system shall be inspected to ensure that drainage facilities, such as trap sumps and drainage trenches, are not blocked and retention embankments or dikes are in good repair.

11.2.~~9~~ 10 * Proportioning Systems.

11.2.~~9~~ 10 .1

The components of the various proportioning systems described in 11.2.9 shall be inspected in accordance with the frequency specified in Table 11.1.1.2.

11.2.~~9~~ 10 .2

Valves specified to be inspected shall be permitted to be open or closed, depending on specific functions within each foam-water system.

11.2.~~9~~ 10 .3

The position (open or closed) of valves shall be verified in accordance with specified operating conditions.

11.2.~~9~~ 10 .4*

Inspection of the concentrate tank shall include verification that the quantity of foam concentrate satisfies the requirements of the original design.

11.2.~~9~~ 10 .5

Additional inspection requirements shall be performed as detailed for the proportioning systems specified in 11.2.9.

11.2.~~9~~ 10 .5.1 Standard Pressure Proportioner.

11.2.~~9~~ 10 .5.1.1*

The pressure shall be removed before the inspection to prevent injury.

11.2.~~9~~ 10 .5.1.2

The inspection shall verify the following:

(1) Ball drip valves (automatic drains) are free and opened.

(2) External corrosion on foam concentrate storage tanks is not present.

11.2.~~9~~ 10 .5.2 Bladder Tank Proportioner.

11.2.~~9~~ 10 .5.2.1*

The pressure shall be removed before the inspection to prevent injury.

11.2.~~9~~ 10 .5.2.2
The inspection shall include the following:

(1) Water control valves to foam concentrate tank

(2) An inspection for external corrosion on foam concentrate storage tanks

(3) An inspection for the presence of foam in the water surrounding the bladder (annual)

11.2.~~9~~ 10 .5.3 Line Proportioner.
The inspection shall include the following:

(1) * Strainers

(2) * Verification that pressure vacuum vent is operating freely

(3) An inspection for external corrosion on foam concentrate storage tanks

11.2.~~9~~ 10 .5.4 Standard Balanced Pressure Proportioner.
The inspection shall include the following:

(1) * Strainers

(2) * Verification that pressure vacuum vent is operating freely

(3) Verification that gauges are in good operating condition

(4) Verification that sensing line valves are open

(5) Verification that power is available to foam liquid pump

11.2.~~9~~ 10 .5.5 In-Line Balanced Pressure Proportioner.
The inspection shall include the following:

(1) * Strainers

(2) * Verification that pressure vacuum vent is operating freely

(3) Verification that gauges are in good working condition

(4) Verification that sensing line valves at pump unit and individual proportioner stations are open

(5) Verification that power is available to foam liquid pump

11.2.~~9~~ 10 .5.6 Orifice Plate Proportioner.
The inspection shall include the following:

(1) * Strainers

(2) * Verification that pressure vacuum vent is operating freely

(3) Verification that gauges are in good working condition

(4) Verification that power is available to foam liquid pump

11.2.~~10~~ – 11 _ Foam Concentrate Samples.
Samples shall be submitted in accordance with the manufacturer's recommended sampling procedures.

Statement of Problem and Substantiation for Public Input

By including the inspection of waterflow devices in the Inspection section (11.2) would require the remainder of the section clause numbers to be revised accordingly.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 51-NFPA 25-2014 [Sections 11.1.4.1.1, 11.1.4.1.2, 11.1.4.1.3]	Waterflow devices
Public Input No. 52-NFPA 25-2014 [Sections 11.3.1.1, 11.3.1.2, 11.3.1.3]	Waterfow devices
Public Input No. 55-NFPA 25-2014 [Section No. 11.1.1.2]	

Submitter Information Verification

Submitter Full Name: KEVIN KAYE
Organization: PROFESSIONAL LOSS CONTROL
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jan 23 08:16:14 EST 2014

Public Input No. 224-NFPA 25-2014 [Section No. 11.2.4]

11.2.4 Hangers ~~and~~ , Seismic Braces, and Supports.

Hangers ~~and~~ , seismic braces, and supports shall be inspected for the following and repaired or replaced as necessary:

(1) Condition (e.g., missing or damaged paint or coating, rust, and corrosion)

(2) Secure attachment to structural supports and piping

(3) Damaged or missing hangers, seismic braces, and supports

Statement of Problem and Substantiation for Public Input

The inspection of seismic braces is required for sprinkler systems in Chapter 5 and should also be required for foam-water systems. NOTE: NFPA 25 uses the term "seismic braces" while NFPA 13 uses the term "sway braces".

Submitter Information Verification

Submitter Full Name: JAMES M FELD
Organization: University of California
Street Address:
City:
State:
Zip:
Submittal Date: Fri Jul 04 12:26:26 EDT 2014

Public Input No. 110-NFPA 25-2014 [Section No. 11.2.7.1]

11.2.7.1
Mainline and individual discharge device strainers (basket or screen) shall be ~~inspected in accordance with the provisions of Chapter 10~~ removed and inspected every 5 years for damaged and corroded parts .

Additional Proposed Changes

File Name	Description	Approved
LGK_NFPA_25-2014_PI_11-2-7-1.pdf	PI Form	

Statement of Problem and Substantiation for Public Input

Instead of a reference to Chapter 10, the directions for the ITM for strainers should stand alone in Chapter 11, the same as in Chapters 7, 9 and 10.
Alternately, the direction for strainers in all chapters could be moved to Chapter 13.

Submitter Information Verification

Submitter Full Name: Larry Keeping
Organization: Professional Loss Control
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jun 05 12:48:55 EDT 2014

Public Input No. 228-NFPA 25-2014 [Sections 11.3.1.1, 11.3.1.2, 11.3.1.3]

Sections 11.3.1.1, 11.3.1.2, 11.3.1.3

~~11.3.1.1 –~~
~~Mechanical waterflow devices, including but not limited to water motor gongs, shall be tested quarterly.~~
~~11.3.1.2 –~~
~~Vane-type and pressure switch–type waterflow devices shall be tested semiannually.~~
~~11.3.1.3 – Waterflow Devices.~~
~~Waterflow devices shall be inspected quarterly to verify that they are free of physical damage.~~

Statement of Problem and Substantiation for Public Input

This proposal is intended to shift the ITM requirements for waterflow devices to Chapter 13.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 225-NFPA 25-2014 [Section No. 13.2.6]	
Public Input No. 226-NFPA 25-2014 [Section No. 11.1.1.2]	
Public Input No. 227-NFPA 25-2014 [Sections 11.1.4.1.1, 11.1.4.1.2, 11.1.4.1.3]	

Submitter Information Verification

Submitter Full Name: JAMES M FELD
Organization: University of California
Street Address:
City:
State:
Zip:
Submittal Date: Fri Jul 04 13:11:15 EDT 2014

Public Input No. 52-NFPA 25-2014 [Sections 11.3.1.1, 11.3.1.2, 11.3.1.3]

Sections 11.3.1.1, 11.3.1.2, 11.3.1.3

11.3.1.1– Waterflow Devices.

Mechanical waterflow devices, including but not limited to water motor gongs, shall be tested quarterly.

11.3.1.2

Vane-type and pressure switch–type waterflow devices shall be tested semiannually.

~~11.3.1.3 – Waterflow Devices.~~

~~Waterflow devices shall be inspected quarterly to verify that they are free of physical damage.~~

Statement of Problem and Substantiation for Public Input

By removing the waterflow device inspection item from the "Operational Test" section of the Chapter, it would improve the organizational structure of Chapter 11.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 51-NFPA 25-2014 [Sections 11.1.4.1.1, 11.1.4.1.2, 11.1.4.1.3]	
Public Input No. 53-NFPA 25-2014 [Sections 11.2.2, 11.2.3, 11.2.4, 11.2.5, 11.2.6, 11.2.7, 11...]	
Public Input No. 55-NFPA 25-2014 [Section No. 11.1.1.2]	

Submitter Information Verification

Submitter Full Name: KEVIN KAYE
Organization: PROFESSIONAL LOSS CONTROL
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jan 23 08:10:14 EST 2014

Public Input No. 211-NFPA 25-2014 [New Section after 11.3.2.3]

11.3.2.4
It shall be permissible to test the full flow discharge from foam-water deluge systems using water only in lieu of foam and according the requirments of section 10.3.

Statement of Problem and Substantiation for Public Input

This proposal is intended to simplify the annual full flow testing requirements for foam-water systems when discharging foam would be undesirable or impractical.

Submitter Information Verification

Submitter Full Name: Robert Upson
Organization: National Fire Sprinkler Association
Affilliation: NFSA Engineering and Standards Committee
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jul 03 09:56:25 EDT 2014

Public Input No. 276-NFPA 25-2014 [Section No. 11.3.5.1]

11.3.5.1

During the ~~full flow foam~~ operational test, a foam concentrate sample shall be taken as described in either 11 .3.5.1.1 or 11.3.5.1.2.

11.3.5.1.1 . The foam concentrate sample shall be taken from a discharge device during the operational test.

11.3.5.1.2 . Where approved by the authority having jurisdiction, simulated foam concentrates or alternative test systems shall be permitted to be substituted for actual foam concentrate, but system pressures and flows shall remain as described above and meet manufacturer's system requirements and recommendations.(NFPA 16 - 8.4.1.6)

Additional Proposed Changes

File Name	Description	Approved
25_Victor_PI_xxx_-_Foam_Concentrate_Testing_Alternative.pdf	PI Form	

Statement of Problem and Substantiation for Public Input

The testing requirements for foam water systems need to be revised to allow for alternative methods to test the foam concentration level during the annual operational test. Some of the text was changed to use consistent terminology. The alternative method allowed by new 11.3.5.1.2 is extracted from NFPA 16.

Submitter Information Verification

Submitter Full Name: Terry Victor
Organization: SimplexGrinnell
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jul 10 07:35:46 EDT 2014

Public Input No. 223-NFPA 25-2014 [New Section after 11.5.3]

New Chapter 12 "Chapter 12 Low-Medium-, High-Expansion, Compressed Air Foam Systems"

Please find attached the proposed new Chapter 12.

Additional Proposed Changes

File Name	Description	Approved
Proposed_Chapter_in_NFPA_25_v5.pdf	Proposed Chapter 12 "Low-, Medium-, High-Expansion, Compressed Air Foam Systems"	

Statement of Problem and Substantiation for Public Input

Since Low-, Medium-, High-Expansion, and Compressed Air Foam systems are water based suppression systems, the Inspection, testing, and maintenance requirements should be in the NFPA 25 "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems" instead of NFPA 11 "Standard for Low-Medium-, High-Expansion Foam". It is also recommended that Chapter 12 of NFPA 11 be removed and the user directed to NFPA 25 for ITM requirements.

Submitter Information Verification

Submitter Full Name: KEVIN KAYE
Organization: PROFESSIONAL LOSS CONTROL
Affilliation: None
Street Address:
City:
State:
Zip:
Submittal Date: Fri Jul 04 08:41:08 EDT 2014

Proposed Chapter in NFPA 25-2015 (Proposed Chapter 12)

Chapter 12 Low-, Medium-, High-Expansion, Compressed Air Foam Systems

12.1 General

12.1.1 Minimum Requirements.

12.1.1.1 This chapter shall provide the minimum requirement for the routine inspection, testing, and maintenance of Low-, Medium- and High-Expansion Foam systems, and compressed air foam systems

12.1.1.2 Table 12.1.1.2 shall be used to determine the minimum require frequencies for inspection, testing, and maintenance.

12.1.2 Other System Components.

12.1.2.1 Private fire service mains, fire pumps, water storage tanks, and valves common to other types of water-based fire protection systems shall be inspected, tested, and maintained in accordance with Chapter 7, 8, 9, and 14 respectively, and as specified in Table 12.1.1.2.

Table 12.1.1.2 Summary of Low, Medium, and High Expansion Foam-Water Sprinkler System Inspection, Testing, and Maintenance

System/Component	Frequency	Reference
Inspection		
Gauges	Weekly	12.2.2
Discharge device location	Annually	12.2.3.1
Discharge device position	Annually	12.2.3.2
Outlet vapour seals	Quarterly	12.2.3.4
Strainer – mainline	Annually / 5 Years	12.2.4
Foam concentration strainers	Quarterly	12.2.4.5
Foam concentrate and container	Annually	12.2.5
Foam proportioning system(s) –all	Monthly	12.2.6
Drainage in system area	Quarterly	12.2.7
Pipe corrosion	Annually	12.2.8
Pipe damage	Annually	12.2.8
Fitting corrosion	Annually	12.2.8
Fitting damage	Annually	12.2.8
Hangers / supports	Annually	12.2.9
Internal pipe corrosion		Chapter 15
Water flow devices		Chapter 14
Water supply tank(s)		Chapter 9
Fire Pump(s)		Chapter 8
Water supply piping		Chapter 7
Pressure regulating valve(s)		Chapter 14

System/Component	Frequency	Reference
Control valve(s)		Chapter 14
Deluge/preaction valve(s)		Chapter 14
Detection system	See NFPA 72, *National Fire Alarm and Signaling Code*	
Operational Testing		
Foam concentrate samples	Annually	12.3.2.2
Discharge device obstructions	Annually	12.3.2.5
Multiple systems	Annually	12.3.3
Foam concentrate solution (or premixed solution) sample	Annually	12.3.5
Proportioning system(s)	Annually	12.3.2, 12.3.5
Manual actuation device(s)	Annually	12.3.4
Backflow preventer(s)		Chapter 14
Waterflow devices		Chapter 14
Water supply piping – flow test		Chapter 7
Control valve(s)		Chapter 14
Valve supervisory switches		Chapter 14
Deluge / preaction valve(s)		Chapter 14
Fire Pumps		Chapter 8
High-pressure cylinders – compressed air foam systems	5 years / 12 years	12.3.6
Pressure Test – compressed air foam systems	When required	12.3.7
Detection system	See NFPA 72, *National Fire Alarm and Signaling Code*	
Water supply tank(s)		Chapter 9
Water supply flow test		Chapter 7
Valve status test	Annually	12.3.8
Maintenance		
Foam concentrate pump operation	Monthly	12.4.2.4.1, 12.4.2.5.1.1
Foam concentrate strainer(s)	Quarterly	Section 12.2.4
Proportioning system(s)		
Standard pressure type		
Ball drip (automatic type) drain valves	5 Years	12.4.2.1.1
Foam concentrate tank – drain and flush	10 Years or as needed	12.4.2.1.2
Corrosion and hydrostatic test	10 Years	12.4.2.1.4
Bladder tank type		
Slight glass	10 Years	12.4.2.2.1
Foam concentrate tank – hydrostatic test	10 Years	12.4.2.2.2
Line type		
Foam concentrate tank – corrosion and pickup pipes	10 Years	12.4.2.3.1, 12.4.2.3.2
Foam concentrate tank – drain and flush	10 Years	12.4.2.3.3
Standard balanced pressure type		
Foam concentrate pump(s)	5 Years *(see Note)*	12.4.2.4.1
Diaphragm balancing valve	5 Years	12.4.2.4.3
Foam concentrate tank	10 Years	12.4.2.4.4
In-line balanced pressure type		
Foam concentrate pump(s)	5 Years	12.4.2.5.1
Diaphragm balancing valve	5 Years	12.4.2.5.3
Foam concentrate tank	10 Years	12.4.2.5.4

System/Component	Frequency	Reference
Pressure vacuum vents	5 Years	12.4.3
Water supply tank(s)		Chapter 9
Fire pump(s)		Chapter 8
Water supply		Chapter 7
Backflow preventer(s)		Chapter 14
Check valve(s)		Chapter 14
Control valve(s)		Chapter 14
Deluge / preaction valves		Chapter 14
Strainer(s) – mainline		12.4.4
Detection system	See NFPA 72, *National Fire Alarm and Signaling Code*	

Note: Also refer to manufacturer's instructions and frequency. Maintenance intervals other than preventive maintenance are not provided, as they depend on the results of the visual inspections and operational tests. For foam-water systems in aircraft hangars, refer to the inspection, test, and maintenance requirements of NFPA 409, *Standard on Aircraft Hangars*, Table 11.1.1.

12.1.3 Low, Medium, High Expansion and Compressed Air Foam Systems.

12.1.3.1 This section shall apply to low-, medium-, and high-expansion and compressed air foam systems as specified in NFPA 11, *Standard for Low-, Medium-, and High-Expansion Foam.*

12.1.3.2 This section shall not apply to foam-water sprinkler systems detailed in NFPA 16, *Standard for the Installation of Foam-Water Sprinkler and Foam-Water Spray Systems.*

12.1.4 Routine Inspection and Testing.

12.1.4.1 If during routine inspection and testing, the low-, medium-, high-expansion foam or compressed air foam system is determined to have been altered or changed (e.g., equipment replaced, relocated, or foam concentrate replaced), it shall be determined whether the design intent has been altered and whether the system operates properly.

12.1.5 Obstruction Investigations.

12.1.5.1 The procedure outlined in Chapter 15 shall be followed where there is a need to conduct an obstruction investigation.

12.1.6 Impairments.

12.1.6.1 The procedures outlined in Chapter 16 shall be followed where an impairment to protection occurs.

12.1.7 Notification to Supervisory Services.

12.1.7.1 To avoid false alarms where a supervisory service is provided, the alarm receiving facility shall be notified by the property owner or designated representative as follows:

(1) Before conducting any test or procedure that could result in the activation of an alarm,

(2) After such test or procedures are concluded.

12.2 Inspection

Systems shall be inspected in accordance with the frequency specified in Table 12.1.1.2.

12.2.1 The inspection shall verify that all components, including foam concentrate discharge devices and proportioning equipment, are installed in accordance with their listing.

12.2.2 Gauges.

12.2.2.1 Gauges shall be inspected weekly to verily that they are in good condition and that normal pressure is being maintained.

12.2.3 Discharge Devices.

12.2.3.1 Low-, medium-, high-expansion, and compressed air foam discharge devices shall be inspected annually to ensure that they are in place, continue to be aimed or pointed in the direction intended in the system design documents, and are free from external loading, corrosion and physical damage.

12.2.3.2 Misaligned discharge devices shall be adjusted, (aimed) by visual means, and the discharge pattern shall be checked at the next scheduled flow test.

12.2.3.3 Inspection shall verify that unlisted combinations of discharge devices and foam concentrate have not been substituted.

12.2.3.4 Fixed discharge outlets equipped with frangible seals shall be inspected to ensure that the seal is intake and undamaged. Damaged vapour seals shall be replaced.

12.2.4 Strainers.

12.2.4.1 Mainline and individual discharge device strainers (basket or screen) shall be inspected for damage and corrosion every 5 years.

12.2.4.2 Individual discharge device strainers shall be removed, cleaned, and inspected after each operation of the system.

12.2.4.3 All strainers shall be inspected and cleaned in accordance with the manufacturer's instructions.

12.2.4.4 Damaged or corroded parts shall be replaced or repaired.

12.2.4.5 Foam concentrate or premixed solution strainers shall be inspected visually quarterly to ensure the blow-down valve is closed and plugged.

12.2.5 Foam Concentrate and Container.

12.2.5.1 The foam concentrate or premixed solution tank shall be inspected annually to ensure that the quantity of foam concentrate satisfies the requirement of the original design.

12.2.5.2 The concentrate or premixed solution tank shall be inspected annually for signs of physical damage, corrosion, and evidence of excessive sludge or deterioration.

12.2.6 Proportioning Systems.

12.2.6.1 The components of the various proportioning systems described in 12.2.5 shall be inspected in accordance with the frequency specified on Table 12.1.1.2.

12.2.6.2 Valves specified to be checked shall be permitted to be open or closed, depending on specific functions within each low-, medium-, high-expansion or compressed air foam system.

12.2.6.3 The position (open or closed) of valves shall be verified in accordance with specified operating conditions.

12.2.6.4 Additional inspection requirements shall be performed as detailed for the proportioning system specified in 12.2.6.5.

12.2.6.5.1 Standard Pressure Proportioner.

12.2.6.5.1.1 The pressure shall be removed before the inspection to prevent injury.

12.2.6.5.1.2 The inspection shall verify the following:

(1) Ball drip valves (automatic drains) are free and opened.

(2) External corrosion on foam concentrate storage tanks is not present.

12.2.6.5.2 Bladder Tank Proportioner.

12.2.6.5.2.1 The pressure shall be removed before the inspection to prevent injury.

12.2.6.5.2.2 The inspection shall include the following:

(1) Water control valves to foam concentrate tank

(2) A check for external corrosion on foam concentrate storage tanks

(3) A check for the presence of foam in the water surrounding the bladder (annual)

12.2.6.5.3 Line Proportioner.

12.2.6.5.3.1 The inspection shall include the following:

(1) Strainers

(2) Verification that pressure vacuum vent is operating freely

(3) A check for external corrosion on foam concentrate storage tanks

12.2.6.5.4 Standard Balanced Pressure Proportioner.

12.2.6.5.4.1 The inspection shall include the following:

(1) Strainers

(2) Verification that pressure vacuum vent is operating freely

(3) Verification that gauges are in good operating condition

(4) Verification that sensing line valves are open

(5) Verification that power is available to foam liquid pump

12.2.6.5.5 In-Line Balanced Pressure Proportioner.

12.2.6.5.5.1 The inspection shall include the following:

(1) Strainers

(2) Verification that pressure vacuum vent is operating freely

(3) Verification that gauges are in good operating condition

(4) Verification that sensing line valves at pump unit and individual proportioner stations are open

(5) Verification that power is available to foam liquid pump

12.2.6.5.6 Orifice Plate Proportioner.

12.2.6.5.6.1 The inspection shall include the following:

(1) Strainers

(2) Verification that pressure vacuum vent is operating freely

(3) Verification that gauges are in good operating condition

(4) Verification that power is available to foam liquid pump

12.2.7 Drainage.

12.2.7.1 The area beneath and surrounding the low-, medium-, high-expansion and compressed air foam system shall be inspected annually to ensure that drainage facilities, such as trap sumps and drainage trenches, are not blocked and retention embankments or dikes are in good repair.

12.2.8 System Piping, and Fittings.

12.2.8.1 System piping and fittings shall be inspected annually for the following and repaired or replaced as necessary:

(1) Mechanical Damage (e.g., broken piping or cracked fittings)

(2) External Damage (e.g., missing or damaged paint or coating, rust, and corrosion)

(3) Misalignment or trapped sections

(4) Low-point drains (automatic or manual)

(5) Location and condition of rubber-gasketed fittings

12.2.9 Hanger and Supports.

12.2.9.1 Hangers and supports shall be inspected annually for the following and repaired or replaced as necessary:

(1) Condition (e.g., missing or damaged paint or coating, rust, and corrosion)

(2) Secure attachment to structural supports and piping

(3) Damaged or missing hangers

12.2.10 Automatic Detection Equipment.

12.2.10.1 Automatic detection equipment shall be inspected, tested, and maintained in accordance with NFPA 72, *National, Fire Alarm and Signaling Code*, to ensure that the detectors are in place, securely fastened, and protected from corrosion, weather, and mechanical damage and that the communication wiring, control panels, or pneumatic tubing systems is functional.

12.3 Operational Tests

Frequency of system tests shall be in accordance with Table 12.1.1.2

12.3.1 Test Preparation.

12.3.1.1 Precautions shall be taken to prevent damage to property during tests.

12.3.2 Operational Test Performance.

12.3.2.1 Operational tests shall be conducted annually to ensure that the foam system(s) responds as designed, both automatically and manually.

12.3.2.1.1 The test procedures shall simulate anticipated emergency events so the response of the foam system(s) can be evaluated.

12.3.2.1.2 Where discharge from the system discharge devices would create a hazardous condition or conflict with local requirements, an approved alternate method to achieve full flow conditions shall be permitted.

12.3.2.2 Foam Concentrate Samples.

12.3.2.2.1 Samples of foam concentrate shall be submitted in accordance with the manufacturer's recommended sampling procedures, for quality condition testing.

12.3.2.3 Response Time.

12.3.2.3.1 Under test conditions, the automatic fire detection systems, when exposed to a test source, shall operate within the requirements of NFPA 72, *National Fire Alarm and Signaling Code*, for the type of detector provided, and the response time shall be recorded.

12.3.2.4 Discharge Time.

12.3.2.4.1 The time lapse between operation of detection systems and water delivery time to the protected area shall be recorded for open discharge devices.

12.3.2.5 Discharge Patterns.

12.3.2.5.1 The discharge patterns from all of the foam discharge devices shall be observed to ensure that patterns are not impeded by plugged discharge devices and to ensure that discharge devices are correctly positioned and that obstructions do not prevent discharge patterns from covering surfaces to be protected.

12.3.2.5.2 Where obstructions occur, the piping and discharge devices shall be cleaned and the system retested.

12.3.2.6 Pressure Reading.

12.3.2.6.1 A pressure reading at the inlet to the foam system (e.g., foam generator, air foam maker, etc.) under the required flow conditions shall be recorded.

12.3.2.6.2 For compressed air foam systems the system air pressure shall be recorded.

12.3.2.6.3 The pressure readings shall be compared to the system design pressures to ensure the original system design requirements are met.

12.3.3 Multiple Systems.

12.3.3.1 The maximum number of systems expected to operate in case of fire shall be tested simultaneously to inspect the adequacy of the water supply and concentrate pump.

12.3.4 Manual Actuation Devices.

12.3.4.1 Manual actuation devices shall be tested annually.

12.3.5 Foam Solution Testing.

12.3.5.1 During the full flow foam test, a foam solution sample shall be taken.

12.3.5.2 The foam solution sample shall be submitted for testing by refractometer or other methods to verify the concentration of the solution.

12.3.5.3 The foam solution concentration shall have one of the following proportions:

(1) Not less than the rated concentration

(2) No more than 30 percent above the rated concentrate, or 1 percentage point above the rated concentration (whichever is less).

12.3.5.4 Test results that deviate more than 10 percent from those recorded in acceptance testing shall be discussed immediately with the manufacturer.

12.3.6 Compressed Air Foam Systems High-Pressure Cylinders.

12.3.6.1 High-Pressure Cylinders used in compressed air foam shall not be recharged without a hydrostatic test (and remarking) if more than 5 years have elapsed from the date of the last test. Cylinders that have been in continuous service without discharging shall be permitted to be retained in service for a maximum of 12 years, after which they shall be discharged and retested before being returned to service.

12.3.7 Compressed Air Foam Systems Pressure Test

12.3.7.1 Pressure tests of normally dry piping shall be made when visual inspection indicates questionable strength due to corrosion or mechanical damage.

12.3.8 Valve Status Test

12.3.8.1 A main drain test shall be performed in accordance with Chapter 14 anytime the main isolation valve is closed and reopened.

12.3.8 Return to Service.

12.3.8.1 After the full flow test, the foam system shall be flushed and returned to service and the foam concentrate tank shall be replenished to the design level.

12.4 Maintenance

12.4.1 Maintenance of Low-, Medium-, High-expansion and compressed air foam systems shall be in accordance with the requirements of those chapters covering the specific component parts.

12.4.2 Maintenance of specific foam proportioning components shall be in accordance with 12.4.2.1 through 12.4.2.5.

12.4.2.1 Standard Pressure Proportioner.

12.4.2.1.1 The ball drip (automatic type) drain valves shall be disassembled, cleaned, and reassembled.

12.4.2.1.2 The foam liquid storage tank shall be drained of foam liquid and flushed.

12.4.2.1.3 Foam liquid shall be permitted to be salvaged and reused.

12.4.2.1.4 The foam liquid tank shall be inspected for internal and external corrosion and hydrostatically tested to the specified working pressure.

12.4.2.2 Bladder Tank Proportioner.

12.4.2.2.1 Sight glass, where provided, shall be removed and cleaned.

12.4.2.2.2 The foam concentrate tank shall be hydrostatically tested to the specified working pressure.

12.4.2.3 Line Proportioner.

12.4.2.3.1 The foam concentrate tank shall be inspected for internal corrosion.

12.4.2.3.2 Pickup pipes inside the tank shall be inspected for corrosion, separation, or plugging.

12.4.2.3.3 The foam concentrate tank shall be drained and flushed.

12.4.2.3.4 Foam concentrate shall be permitted to be salvaged and reused.

12.4.2.4 Standard Balanced Pressure Proportioner.

12.4.2.4.1 Pump Operation.

12.4.2.4.1.1 The foam concentrate pump shall be operated monthly.

12.4.2.4.1.2 Foam concentrate shall be circulated back to the tank.

12.4.2.4.2 Servicing.

12.4.2.4.2.1 Foam pumps, drive train, and drivers shall be serviced in accordance with the manufacturer's instructions and frequency but not at intervals of more than 5 years.

12.4.2.4.3 Flushing.

12.4.2.4.3.1 The diaphragm balancing valve shall be flushed through the diaphragm section with water or foam concentrate until fluid appears clear and new.

12.4.2.4.4 Corrosion and Sediment.

12.4.2.4.4.1 The foam concentrate tank shall be inspected internally for corrosion and sediment.

12.4.2.4.4.2 Excessive sediment shall require draining and flushing of the tank.

12.4.2.5 In-Line Balanced Pressure Proportioner.

12.4.2.5.1 Pump Operation.

12.4.2.5.1.1 The foam concentrate pump shall be operated monthly.

12.4.2.5.1.2 Foam concentrate shall be circulated back to the tank.

12.4.2.5.2 Servicing.

12.4.2.5.2.1 Foam pumps, drive train, and drivers shall be serviced in accordance with the manufacturer's instructions and frequency but not at intervals of more than 5 years.

12.4.2.5.3 Flushing.

12.4.2.5.3.1 The diaphragm balancing valve shall be flushed through the diaphragm section with water or foam concentrate until fluid appears clear and new.

12.4.2.5.4 Corrosion and Sediment.

12.4.2.5.4.1 The foam concentrate tank shall be inspected internally for corrosion and sediment.

12.4.2.5.4.2 Excessive sediment shall require draining and flushing of the tank.

12.4.3 Pressure Vacuum Vent.

12.4.3.1 The procedures specified in 12.4.3.2 through 12.4.3.14 shall be performed on pressure vacuum vents every 5 years.

12.4.3.2 The vent shall be removed from the expansion dome.

12.4.3.3 The vent shall be checked to ensure that the opening is not blocked and that dirt or other foreign objects do not entre the tank.

12.4.3.4 The vest bonnet shall be removed.

12.4.3.5 The vacuum valve and pressure valve shall be lifted out.

12.4.3.6 The vent body shall be flushed internally, and the vacuum valve and the pressure valve shall be washed thoroughly.

12.4.3.7 The vent shall be checked to ensure that the screen is not clogged, and the use of any hard, pointed objects to clear the screen shall be avoided.

12.4.3.8 If the liquid has become excessively gummy or solidified, the vent body and pans shall be soaked in hot soapy water.

12.4.3.9 The vent body shall be turned upside down and drained thoroughly.

12.4.3.10 Parts shall be dried by placing them in a warm and dry area or by using an air hose.

12.4.3.11 Parts shall be sprayed with a light Teflon® coating, and the vent shall be reassembled.

12.4.3.12 The use of any type of oil for lubrication purposes shall not be permitted.

12.4.3.13 The vent bonnet shall be replaced, and the vent shall be turned upside down slowly a few times to ensure proper freedom of the movable parts.

12.4.3.14 The vent shall be attached to the liquid storage tank expansion dome.

12.4.4 Mainline Strainers.

12.4.4.1 Mainline strainers (basket or screen) shall be flushed until clear after each operation or flow test.

12.4.4.2 All strainers shall be inspected and cleaned in accordance with the manufacturer's instructions.

12.4.4.3 Damaged or corroded parts shall be replaced or repaired.

12.5 Component Action Requirements

12.5.1 Whenever a component in a low-, medium-, high-expansion or compressed air foam system is adjusted, repaired, reconditioned, or replaced, the action required in Table 12.5.1 shall be performed.

Table 12.5.1 Summary of Component Replacement Action Requirements

Component	Adjust	Repair/ Recondition	Replace	Required Action
Water Delivery Components				
Pipe and fittings	x	x	x	Operational flow test
Discharge devices	x		x	Inspect for impairments at orifice
Manual release	x	x	x	(1)Operational test (2)Inspect for leaks at system working pressure (3)Test all alarms
Foam Components				
Foam concentrate strainer(s)				See Chapter 14
Proportioning system(s)	x	**x**	**x**	Conduct flow test and inspect proportioning by refractometer test or equivalent.

Component	Adjust	Repair/ Recondition	Replace	Required Action
Water supply tank(s)				See Chapter 9
Foam concentrate	x	x	x	Sample for laboratory analysis for conformance with manufacturer's specifications
Foam concentrate pump				See Chapter 8
Ball drip (automatic type) drain valves				See Chapter 14
Foam concentrate tank	x	x	x	Inspect for condition, repair as appropriate
Bladder tank	x	x	x	Inspect water jacket for presence of foam concentrate
High pressure cylinder			x	Inspect for hydrostatic test within 5 years
Alarm and Supervisory Components				
Waterflow alarm device	x	x	x	Operational test using inspector's test connection or alarm test connection.
Valve supervisory device			x	Test for conformance to NFPA 11 and/or NFPA 72, *National Fire Alarm and Signaling Code*
Detection system	x	x	x	Operational Test for conformance with NFPA 11 and/or NFPA 72.
Status-Indicating Components				
Gauges			x	Verify at 0 psi (0 bar) and system working pressure
Testing and Maintenance Components				
Main drain	x	x	x	Full flow main drain test
Auxiliary drains	x	x	x	Inspect for leaks at system working pressure
Inspectors test connection	x	x	x	Inspect for leaks at system working pressure.
Structural Components				
Hanger/seismic bracing	x	x	x	Inspect for compliance with NFPA 11 and/or NFPA 13, *Standard for the Installation of Sprinkler Systems.*
Pipe stands	x	x	x	Inspect for compliance with NFPA 11 and/or NFPA 13.

Component	Adjust	Repair/ Recondition	Replace	Required Action
Information Components				
Valve information signs	x	x	x	Inspect for compliance with NFPA 11 and/or NFPA 13.
Hydraulic information signs	x	x	x	Inspect for compliance with NFPA 11 and/or NFPA 13.

12.5.2 Where the original installation standard is different from the cited standard, the use of the appropriate installing standard shall be permitted.

12.5.3 A main drain test shall be required if the system control or other upstream valve was operated in accordance with Chapter 14.

12.5.4 The actions of 12.5.1 through 12.5.3 shall not require a design review, which is outside the scope of the standard.

Public Input No. 191-NFPA 25-2014 [Section No. 12.1.2]

12.1.2 * Requirements.

The components of typical water mist systems to be inspected and tested are provided in Table 12.1.2.

Table 12.1.2 Mist Systems

Item	Task	Weekly	Monthly	Quarterly	Semi-annually	Annually	Other
Water supply (general)	Inspect source pressure.			X			
	Inspect source quality (*first year).				X*	X	
	Test source pressure, flow, quantity, duration.					X	
Water storage tanks	Inspect water level (unsupervised).		X				
	Inspect water level (supervised).			X			
	Confirm sight glass valves are open.		X				
	Inspect tank gauges, pressure.			X			
	Inspect all valves, appurtenances.				X		
	Drain tank, inspect interior, and refill.					X	
	Inspect tank condition (corrosion).					X	
	Inspect water quality.					X	
	Inspect water temperature.						Extreme weather
Water storage cylinder (high pressure)	Inspect water level (load cells).				X		
	Inspect water level (unsupervised).			X			
	Inspect support frame/restraints.					X	
	Inspect vent plugs at refilling.					X	
	Inspect cylinder pressure on discharge.					X	
	Inspect filters on refill connection.					X	
Additive storage cylinders	Inspect general condition, corrosion.			X			
	Inspect quantity of additive agent.				X		
	Test quality of additive agent.					X	
	Test additive injection, full discharge test.					X	
Water recirculation tank	Inspect water level (unsupervised).		X				
	Inspect water level (supervised).			X			
	Inspect supports, attachments.					X	
	Test low water level alarm.					X	
	Inspect water quality, drain, flush, and refill.					X	
	Test operation of float-operated valve.					X	
	Test pressure at outlet during discharge.					X	
	Test backflow prevention device (if present).					X	
	Inspect and clean filters, strainers, cyclone separator.					X	
Compressed gas cylinders	Inspect support frame and cylinder restraints.			X			
	Inspect cylinder pressure (unsupervised).		X				
	Inspect cylinder pressure (supervised).			X			
	Confirm cylinder control valve is open.		X				
	Inspect cylinder capacity and pressure rating.					X	
	Inspect cylinder compliance specification.					X	
	Confirm compressed gas meets specifications (moisture, cylinder pressure).					X	
	Hydrostatic test cylinders.						5–12 years
Plant air, compressors, and receivers	Inspect air pressure (unsupervised).	X					
	Inspect air pressure (supervised).		X				
	Start compressor.	X					
	Check compressor/receiver capacity, changes.				X		
	Inspect compressed air moisture content.					X	
	Clean filters, moisture traps.				X		
	Test full capacity, duration, and any changes in other demands.					X	
Pumps and drivers	Inspection, testing, and maintenance in accordance with the requirements of NFPA 20, *Standard for the Installation of Stationary Pumps for Fire Protection* , and NFPA 25.	X	X	X	X	X	
Standby pump	Inspect and empty the moisture trap, oil injection (pneumatic).		X				
	Inspect compressed gas supply, inlet air pressure.		X				
	Inspect outlet water (standby) pressure.		X				
	Test start/stop pressure settings for standby pressure.			X			
Pneumatic valves	Inspect cylinder valves, master release valves.		X				
	Inspect all tubing associated with release valves.			X			
	Test solenoid release of master release valve.				X		
	Test manual release of master release valve.					X	
	Test operation of slave valves.					X	
	Reset all pneumatic cylinder release valves.					X	
	Test on-off cycling of valves intended to cycle.					X	

Item	Task	Weekly	Monthly	Quarterly	Semi-annually	Annually	Other
System control valves	Inspection, testing, and maintenance in accordance with the requirements of NFPA 25.	X	X	X	X	X	
Control equipment	Inspection, testing, and maintenance in accordance with the requirements of *NFPA 72, National Fire Alarm and Signaling Code* .						
Water mist system piping and nozzles	Inspection, testing, and maintenance in accordance with NFPA 25. Inspect sample of nozzle screens and strainers *(see 10.5.1.4 of NFPA 750, Standard on Water Mist Fire Protection Systems)* .	X	X	X	X	X	After discharge
Enclosure features, interlocks	Inspect enclosure integrity.				X		
Ventilation	Test interlocked systems (e.g., ventilation shutdown). Test shutdown of fuel/lubrication systems.					X X	

12.1.2.1
Water mist nozzles shall be inspected from the floor level annually.
12.1.2.1.1
Any water mist nozzle that shows signs of any of the following shall be replaced:

(1) Leakage
(2) Corrosion
(3) Physical damage
(4) Loss of fluid in the glass bulb heat responsive element
(5) * Loading
(6) Painting, unless painted by the water mist nozzle manufacturer

12.1.2.1.2
Any water mist nozzle that has been installed in the incorrect orientation shall be corrected by repositioning the branch line, drop, or sprig, or shall be replaced.
12.1.2.1.3
Water mist nozzles with glass bulbs shall be replaced if the bulbs are empty of fluid.
12.1.2.1.4
Water mist nozzles installed in concealed spaces such as above suspended ceilings shall not require inspection.
12.1.2.1.5
Water mist nozzles installed in areas that are inaccessible for safety considerations due to process operations shall be inspected during each scheduled shutdown.
12.1.2.1.6
Stock, furnishings, or equipment closer to the water mist nozzle than permitted by the clearance specified in the manufacturer's installation instructions shall be corrected.
12.1.2.2
The supply of spare automatic water mist nozzles shall be inspected annually for the correct number and type of water mist nozzles as required by NFPA 750.
12.1.2.3 * .
Where required by this section, sample automatic water mist nozzles shall be submitted to a recognized testing laboratory acceptable to the authority having jurisdiction for functional testing.
12.1.2.3.1
Automatic water mist nozzles that have been in service for 20 years shall be replaced, or representative samples shall be tested and then retested at 10-year intervals.
12.1.2.3.2 * .
Where water mist nozzles are subjected to harsh environments, including corrosive atmospheres and corrosive water supplies, they shall be either replaced or representative samples tested on a 5-year basis.
12.1.2.4 * .
A representative sample of water mist nozzles for testing per 12.1.2.3 shall consist of a minimum of four water mist nozzles or 1 percent of the number of water mist nozzles per individual water mist nozzle sample, whichever is greater.
12.1.2.4.1
Where one water mist nozzle within a representative sample fails to meet the test requirement, all water mist nozzles within the area represented by that sample shall be replaced.

Statement of Problem and Substantiation for Public Input

Links to proposed documentary/deficiency requirement for long term ITM intervals.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 180-NFPA 25-2014 [New Section after 4.3.5]	

Submitter Information Verification

Submitter Full Name: Robert Upson
Organization: National Fire Sprinkler Association
Affilliation: NFSA Engineering and Standards Committee
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jul 02 13:17:25 EDT 2014

Public Input No. 121-NFPA 25-2014 [Sections 12.2.1.1.1, 12.2.1.1.2, 12.2.1.1.3]

Sections 12.2.1.1.1, 12.2.1.1.2, 12.2.1.1.3

~~12.2.1.1.1 –~~
~~Mechanical waterflow devices, including but not limited to water motor gongs, shall be tested quarterly.~~
~~12.2.1.1.2 –~~
~~Vane-type and pressure switch–type waterflow devices shall be tested semiannually.~~
~~12.2.1.1.3 –~~
~~Waterflow devices shall be inspected quarterly to verify that they are free of physical damage.~~

Additional Proposed Changes

File Name	Description Approved
LGK_NFPA_25-2014_PI_Table_12.1.2_etc.pdf	PI Form

Statement of Problem and Substantiation for Public Input

Currently Sections 12.2.1.1.1, 12.2.1.1.2 and 12.2.1.1.3 are part of Section 12.2 which deals with Maintenance, but these three items provide Inspection and Testing requirements. Therefore, each of these sections should be deleted from their inappropriate location(s) and replaced with complementary inspection and testing instructions in Table 12.1.2.

Submitter Information Verification

Submitter Full Name: Larry Keeping
Organization: Professional Loss Control
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jun 05 13:20:31 EDT 2014

Public Input No. 230-NFPA 25-2014 [Section No. 13.1.1.1]

13.1.1.1
This chapter shall provide the minimum requirements for the routine inspection, testing, and maintenance of valves, valve components, trim, and ~~trim~~ alarm devices .

Statement of Problem and Substantiation for Public Input

Alarm devices are not always considered valve trim. A pressure switch that is attached to a retard chamber may be considered valve trim, but a waterflow switch or a pressure switch used to monitor air pressure are not.

Submitter Information Verification

Submitter Full Name: JAMES M FELD
Organization: University of California
Street Address:
City:
State:
Zip:
Submittal Date: Fri Jul 04 13:29:00 EDT 2014

Public Input No. 192-NFPA 25-2014 [Section No. 13.1.1.2]

13.1.1.2 *

Table 13.1.1.2 shall be used to determine the minimum required frequencies for inspection, testing, and maintenance.

Table 13.1.1.2 Summary of Valves, Valve Components, and Trim Inspection, Testing, and Maintenance

Item	Frequency	Reference
Inspection		
Control Valves		
Sealed	Weekly	13.3.2.1
Locked or electrically supervised	Monthly	13.3.2.1.1
Valve Supervisory Signal Initiating Device	Quarterly	13.3.2.1.2
Alarm Valves		
Exterior	Monthly	13.4.1.1
Interior	5 years	13.4.1.2
Strainers, filters, orifices	5 years	13.4.1.2
Check Valves		
Interior	5 years	13.4.2.1
Preaction/Deluge Valves		
Enclosure (during cold weather)	Daily/weekly	13.4.3.1
Exterior	Monthly	13.4.3.1.6
Interior	Annually/5 years	13.4.3.1.7
Strainers, filters, orifices	5 years	13.4.3.1.8
Dry Pipe Valves/		
Quick-Opening Devices		
Gauges	Weekly/monthly	13.4.4.1.2.4, 13.4.4.1.2.5
Enclosure (during cold weather)	Daily/weekly	13.4.4.1.1
Exterior	Monthly	13.4.4.1.4
Interior	Annually	13.4.4.1.5
Strainers, filters, orifices	5 years	13.4.4.1.6
Pressure-Reducing and Relief Valves		
Sprinkler systems	Quarterly	13.5.1.1
Hose connections	Annually	13.5.2.1
Hose racks	Annually	13.5.3.1
Fire pumps		
Casing relief valves	Weekly	13.5.7.1, 13.5.7.1.1
Pressure-relief valves	Weekly	13.5.7.2, 13.5.7.2.1
Backflow Prevention Assemblies		
Reduced pressure	Weekly/monthly	13.6.1
Reduced-pressure detectors	Weekly/monthly	13.6.1
Fire Department Connections	Quarterly	13.7.1
Testing		
Main Drains	Annually/quarterly	13.2.5, 13.2.5.1, 13.3.3.4
Gauges	5 years	13.2.7.2
Waterflow Alarms	Quarterly/semiannually	13.2.6
Control Valves		
Position	Annually	13.3.3.1
Operation	Annually	13.3.3.1
Supervisory	Semiannually	13.3.3.5
Preaction/Deluge Valves		
Priming water	Quarterly	13.4.3.2.1
Low air pressure alarms	Quarterly/annually	13.4.3.2.13, 13.4.3.2.14
Full flow	Annually	13.4.3.2.2
Air leakage	3 years	13.4.3.2.6
Dry Pipe Valves/		
Quick-Opening Devices		
Air leakage	3 years	13.4.4.2.9
Priming water	Quarterly	13.4.4.2.1
Low air pressure alarm	Quarterly	13.4.4.2.6
Quick-opening devices	Quarterly	13.4.4.2.4
Trip test	Annually	13.4.4.2.2
Full flow trip test	3 years	13.4.4.2.2.2
Pressure-Reducing and Relief Valves		
Sprinkler systems	5 years	13.5.1.2
Circulation relief	Annually	13.5.7.1.2
Pressure relief valves	Annually	13.5.7.2.2
Hose connections	5 years	13.5.2.2
Hose racks	5 years	13.5.3.2
Backflow Prevention Assemblies	Annually	13.6.2
Maintenance		
Control Valves	Annually	13.3.4
Preaction/Deluge Valves	Annually	13.4.3.3.2

Item	Frequency	Reference
Dry Pipe Valves/ Quick-Opening Devices	Annually	13.4.4.3

Statement of Problem and Substantiation for Public Input

Links to proposed documentary/deficiency requirement for long term ITM intervals.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 180-NFPA 25-2014 [New Section after 4.3.5]	

Submitter Information Verification

Submitter Full Name: Robert Upson
Organization: National Fire Sprinkler Association
Affilliation: NFSA Engineering and Standards Committee
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jul 02 13:18:39 EDT 2014

Public Input No. 262-NFPA 25-2014 [Section No. 13.1.1.2]

13.1.1.2

Table 13.1.1.2 shall be used to determine the minimum required frequencies for inspection, testing, and maintenance.

Table 13.1.1.2 Summary of Valves, Valve Components, and Trim Inspection, Testing, and Maintenance

Item	Frequency	Reference
Inspection		
Control Valves		
Sealed	Weekly	13.3.2.1
Locked or electrically supervised	Monthly	13.3.2.1.1
Valve Supervisory Signal Initiating Device	Quarterly	13.3.2.1.2
Alarm Valves		
Exterior	Monthly	13.4.1.1
Interior	5 years	13.4.1.2
Strainers, filters, orifices	5 years	13.4.1.2
Check Valves		
Interior	5 years	13.4.2.1
Preaction/Deluge Valves		
Enclosure (during cold weather)	Daily/weekly	13.4.3.1
Exterior	Monthly	13.4.3.1.6
Interior	Annually/5 years	13.4.3.1.7
Strainers, filters, orifices	5 years	13.4.3.1.8
Dry Pipe Valves/		
Quick-Opening Devices		
Gauges	Weekly/monthly	13.4.4.1.2.4, 13.4.4.1.2.5
Enclosure (during cold weather)	Daily/weekly	13.4.4.1.1
Exterior	Monthly	13.4.4.1.4
Interior	Annually	13.4.4.1.5
Strainers, filters, orifices	5 years	13.4.4.1.6
Pressure-Reducing and Relief Valves		
Sprinkler systems	Quarterly	13.5.1.1
Hose connections	Annually	13.5.2.1
Hose racks	Annually	13.5.3.1
Fire pumps		
Casing relief valves	Weekly	13.5.7.1, 13.5.7.1.1
Pressure-relief valves	Weekly	13.5.7.2, 13.5.7.2.1
Backflow Prevention Assemblies		
Reduced pressure	Weekly/monthly	13.6.1
Reduced-pressure detectors	Weekly/monthly	13.6.1
Fire Department Connections	Quarterly	13.7.1
Testing		
Main Drains	Annually/quarterly	13.2.5, 13.2.5.1, 13.3.3.4
Gauges	5 years	13.2.7.2
Waterflow Alarms	Quarterly/semiannually	13.2.6
Control Valves		
Position	Annually	13.3.3.1
Operation	Annually	13.3.3.1
Supervisory		
~~Semiannually~~		
Annually	13.3.3.5	
Preaction/Deluge Valves		
Priming water	Quarterly	13.4.3.2.1
Low air pressure alarms	Quarterly/annually	13.4.3.2.13, 13.4.3.2.14
Full flow	Annually	13.4.3.2.2
Air leakage	3 years	13.4.3.2.6
Dry Pipe Valves/		
Quick-Opening Devices		
Air leakage	3 years	13.4.4.2.9
Priming water	Quarterly	13.4.4.2.1
Low air pressure alarm	Quarterly	13.4.4.2.6
Quick-opening devices	Quarterly	13.4.4.2.4
Trip test	Annually	13.4.4.2.2
Full flow trip test	3 years	13.4.4.2.2.2
Pressure-Reducing and Relief Valves		
Sprinkler systems	5 years	13.5.1.2
Circulation relief	Annually	13.5.7.1.2
Pressure relief valves	Annually	13.5.7.2.2
Hose connections	5 years	13.5.2.2
Hose racks	5 years	13.5.3.2
Backflow Prevention Assemblies	Annually	13.6.2
Maintenance		

Control Valves	Annually	13.3.4
Preaction/Deluge Valves	Annually	13.4.3.3.2
Dry Pipe Valves/ Quick-Opening Devices	Annually	13.4.4.3

Statement of Problem and Substantiation for Public Input

To be consistent with the NFPA 72 inspection, testing and maintenance, technical committee action at the recent second revision meeting to change all electrically connected water-based fire protection system initiating device supervisory alarm switches (control valve, air pressure, room temperature, water level and water temperature) listed in Table 14.4.3.2, Item 17(J) to an annual frequency.

Submitter Information Verification

Submitter Full Name: Frank Van Overmeiren
Organization: FP&C Consultants, Inc.
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jul 07 14:27:14 EDT 2014

Public Input No. 271-NFPA 25-2014 [Section No. 13.1.1.2]

13.1.1.2

Table 13.1.1.2 shall be used to determine the minimum required frequencies for inspection, testing, and maintenance.

Table 13.1.1.2 Summary of Valves, Valve Components, and Trim Inspection, Testing, and Maintenance

Item	Frequency	Reference
Inspection		
Control Valves		
Sealed	Weekly	13.3.2.1
Locked or electrically supervised	Monthly	13.3.2.1.1
Valve Supervisory Signal Initiating Device	Quarterly	13.3.2.1.2
Alarm Valves		
Exterior	Monthly	13.4.1.1
Interior	5 years	13.4.1.2
Strainers, filters, orifices	5 years	13.4.1.2
Check Valves		
Interior	5 years	13.4.2.1
Preaction/Deluge Valves		
Enclosure (during cold weather)	Daily/weekly	13.4.3.1
Exterior	Monthly	13.4.3.1.6
Interior	Annually/5 years	13.4.3.1.7
Strainers, filters, orifices	5 years	13.4.3.1.8
Dry Pipe Valves/		
Quick-Opening Devices		
Gauges	Weekly/monthly	13.4.4.1.2.4, 13.4.4.1.2.5
Enclosure (during cold weather)	Daily/weekly	13.4.4.1.1
Exterior	Monthly	13.4.4.1.4
Interior	Annually	13.4.4.1.5
Strainers, filters, orifices	5 years	13.4.4.1.6
Pressure-Reducing and Relief Valves		
Sprinkler systems	Quarterly	13.5.1.1
Hose connections	Annually	13.5.2.1
Hose racks	Annually	13.5.3.1
Fire pumps		
Casing relief valves	Weekly	13.5.7.1, 13.5.7.1.1
Pressure-relief valves	Weekly	13.5.7.2, 13.5.7.2.1
Backflow Prevention Assemblies		
Reduced pressure	Weekly/monthly	13.6.1
Reduced-pressure detectors	Weekly/monthly	13.6.1
Fire Department Connections	Quarterly	13.7.1
Testing		
Main Drains	Annually/quarterly	13.2.5 .1 , 13.2.5.
1		
	2 ,	
13		
13 .3.3.4		
Gauges	5 years	13.2.7.2
Waterflow Alarms	Quarterly/semiannually	13.2.6
Control Valves		
Position	Annually	13.3.3.1
Operation	Annually	13.3.3.1
Supervisory	Semiannually	13.3.3.5
Preaction/Deluge Valves		
Priming water	Quarterly	13.4.3.2.1
Low air pressure alarms	Quarterly/annually	13.4.3.2.13, 13.4.3.2.14
Full flow	Annually	13.4.3.2.2
Air leakage	3 years	13.4.3.2.6
Dry Pipe Valves/		
Quick-Opening Devices		
Air leakage	3 years	13.4.4.2.9
Priming water	Quarterly	13.4.4.2.1
Low air pressure alarm	Quarterly	13.4.4.2.6
Quick-opening devices	Quarterly	13.4.4.2.4
Trip test	Annually	13.4.4.2.2
Full flow trip test	3 years	13.4.4.2.2.2
Pressure-Reducing and Relief Valves		
Sprinkler systems	5 years	13.5.1.2
Circulation relief	Annually	13.5.7.1.2
Pressure relief valves	Annually	13.5.7.2.2
Hose connections	5 years	13.5.2.2
Hose racks	5 years	13.5.3.2

Backflow Prevention Assemblies	Annually	13.6.2
Maintenance		
Control Valves	Annually	13.3.4
Preaction/Deluge Valves	Annually	13.4.3.3.2
Dry Pipe Valves/ Quick-Opening Devices	Annually	13.4.4.3

Statement of Problem and Substantiation for Public Input

Corrected the referenced sections for main drain testing.

Submitter Information Verification

Submitter Full Name: Tracey Bellamy
Organization: Telgian Corporation
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jul 07 14:57:52 EDT 2014

Public Input No. 167-NFPA 25-2014 [Section No. 13.2.4]

~~13.2.4 –~~
~~Before opening a test or drain valve, it shall be verified that adequate provisions have been made for drainage.~~

Statement of Problem and Substantiation for Public Input

This P.I. seeks to remove section 13.2.4 from chapter 13 and adding this requirement to chapter 4 as an owner's responsibility. Ensuring that there is adequate drainage is outside the scope of the inspector and should be the responsibility of the building owner. It is not practical that during the course of system ITM, that the contractor be charged with verifying proper drainage. This is a general building maintenance issue and as such should be part of the owner's responsibility. It is the owners responsibility that all systems are maintained as operational.

A separate PI has been submitted adding the current language of 13.2.4 to section 4.1.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 168-NFPA 25-2014 [New Section after 4.1.3]	
Public Input No. 219-NFPA 25-2014 [Section No. 8.3.3.1.2.1(B)]	

Submitter Information Verification

Submitter Full Name: Roland Asp
Organization: National Fire Sprinkler Association
Affilliation: NFSA E&S Committee
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jul 01 10:52:19 EDT 2014

Public Input No. 225-NFPA 25-2014 [Section No. 13.2.6]

13.2.6 – Waterflow Alarm Devices.

13.2.6.1 –

~~Mechanical~~

Mechanical waterflow alarm devices, including but not limited to water motor gongs

~~, shall be~~

.

13.2.6.1.1 Mechanical waterflow alarm devices shall be inspected quarterly to verify that they are free of physical damage

13.2.6.1.2 Mechanical waterflow alarm devices shall be tested quarterly.

13.2.6.2 –

~~Vane~~

Vane -type

~~and~~

, paddle-type, and pressure switch–type waterflow alarm devices .

13.2.6.2.1 Vane-type, paddle-type, and pressure switch-type waterflow alarm devices shall be inspected quarterly to verify that they are free of physical damage

13.2.6.2.2 Vane-type, paddle-type, and pressure switch-type waterflow alarm devices shall be tested semiannually.

13.2.6.3 Testing waterflow alarm devices on wet pipe systems shall be accomplished by opening the inspector's test valve.

13.2.6.4 Where freezing weather conditions or other circumstances prohibits the use of the inspector's test valve, the bypass connection shall be permitted to be used.

13.2.6.5 Fire pumps shall not be taken out of service during testing unless constantly attended by qualified personnel or all impairment procedures contained in Chapter 15 are followed.

Statement of Problem and Substantiation for Public Input

Waterflow alarm devices are installed on most of the water-based systems covered by NFPA 25. Each chapter should refer to Chapter 13 for ITM requirements. Various chapters handle these requirements in a different manner. For example, Chapter 11 covers waterflow devices in Section 11.1.4.1 and in 11.2.1 (per Table 11.1.1.2) and in 11.3.1. See the proposal to clean up Chapter 11.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 226-NFPA 25-2014 [Section No. 11.1.1.2]	
Public Input No. 227-NFPA 25-2014 [Sections 11.1.4.1.1, 11.1.4.1.2, 11.1.4.1.3]	
Public Input No. 228-NFPA 25-2014 [Sections 11.3.1.1, 11.3.1.2, 11.3.1.3]	
Public Input No. 231-NFPA 25-2014 [Section No. 10.1.5]	
Public Input No. 232-NFPA 25-2014 [Section No. 9.1.2]	
Public Input No. 233-NFPA 25-2014 [Section No. 6.1.4]	

Submitter Information Verification

Submitter Full Name: JAMES M FELD
Organization: University of California
Street Address:
City:
State:
Zip:
Submittal Date: Fri Jul 04 12:41:29 EDT 2014

Public Input No. 272-NFPA 25-2014 [Section No. 13.3.3.4]

13.3.3.4
A ~~main drain~~ valve status test shall be conducted any time the control valve is closed and reopened at system riser.

Statement of Problem and Substantiation for Public Input

There are a number of ways in which a test can be conducted to ensure the valve has been reopened. By leaving this requirement in place effectively we require a full main drain test on all systems annually which negates the allowance provided last cycle for a single main drain test for the water supply serviing multiple systems, including every floor of a multi-story building with floor control valve assemblies.

Submitter Information Verification

Submitter Full Name: Tracey Bellamy
Organization: Telgian Corporation
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jul 07 15:00:15 EDT 2014

Public Input No. 264-NFPA 25-2014 [Section No. 13.3.3.5.1]

13.3.3.5.1
Valve supervisory switches shall be tested ~~semiannually~~ annually .

Statement of Problem and Substantiation for Public Input

To be consistent with the NFPA 72 inspection, testing and maintenance, technical committee action at the recent second revision meeting to change all electrically connected water-based fire protection system initiating device supervisory alarm switches (control valve, air pressure, room termperature, water level and water temperature) listed in Table 14.4.3.2, Item 17(J) to an annual frequency.

Submitter Information Verification

Submitter Full Name: Frank Van Overmeiren
Organization: FP&C Consultants, Inc.
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jul 07 14:30:57 EDT 2014

Public Input No. 4-NFPA 25-2013 [Section No. 13.4.2.1]

13.4.2.1 Inspection.

13.4.2.1.1*

Valves shall be ~~inspected internally~~ tested every 5 years for forward flow and reverse flow leakage.

13.4.2.1.2

When valves are not tested as required in 13.4.2.1.1, the valve shall be inspected internally every 5 years to verify that all components operate correctly, move freely, and are in good condition.

A.13.4.2.1.1

Some check valves on shotgun risers cannot be easily opened for inspection because it requires dismantling the riser or having the water authority turn off the water at the street corporation stop. The valve should be tested for forward flow equal to the system demand. The check valve in the FDC can be temporarily reversed to allow water flow out of the FDC. Backflow can be determined by increasing the pressure in the system to be more than the water supply pressure and monitoring for pressure loss for 4 hours.

Statement of Problem and Substantiation for Public Input

I have incurred this situation where the riser check valve is between the water authority corporation stop and the system control valve. The check valve had grooved couplings and no inspection port. The manufacturer designed it to be removed. However there is no drain below the system valve, it requires the water authority to operate the corporation stop, and then the riser must be supported while the valve is dismantled for inspection. Arguably this is the exception but I put it first because it was difficult to write the exception the other way around. Most situations where check valves are downstream of the control valve, they will be internally inspected. To do otherwise would be an onerous task.

Submitter Information Verification

Submitter Full Name: Michael DeVore
Organization: State Farm Insurance Company
Street Address:
City:
State:
Zip:
Submittal Date: Thu Oct 24 11:44:00 EDT 2013

Public Input No. 283-NFPA 25-2014 [Section No. 13.4.4.2.5.2]

13.4.4.2.5.2
Records of dry pipe valve tripping time and water transit delivery time to the inspector's test connection shall be maintained for full flow trip tests.

Additional Proposed Changes

File Name	Description	Approved
13.4.4.2.5.2.docx	PI Submission	

Statement of Problem and Substantiation for Public Input

The full flow trip test methodology described in the annex and in the handbook suggest that two people should conduct this test so that both the valve trip test time and the water transit time are observed. While there is no pass/fail criteria for water transit time, longer transit times are an indicator of internal condition problems and should be recorded for comparison to past results. The current requirement to maintain the DPV trip test time only encourages the test to be performed by a single person. This change will reinforce the need to observe both functions.

Submitter Information Verification

Submitter Full Name: ROBERT CAPUTO
Organization: FIRE LIFE SFTY AMERICA
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jul 10 13:31:50 EDT 2014

Public Input No. 293-NFPA 25-2014 [Section No. 13.4.4.2.5.2]

13.4.4.2.5.2
Records of dry pipe valve tripping time and water transit delivery time to the inspector's test connection shall be maintained for full flow trip tests.

Statement of Problem and Substantiation for Public Input

The full flow trip test methodology described in the annex and in the handbook suggest that two people should conduct this test so that both the valve trip test time and the water transit time are observed. While there is no pass/fail criteria for water transit time, longer transit times are an indicator of internal condition problems and should be recorded for comparison to past results. The current requirement to maintain the DPV trip test time only encourages the test to be performed by a single person. This change will reinforce the need to observe both functions.

Submitter Information Verification

Submitter Full Name: Robert Caputo
Organization: Telgian Corp
Street Address:
City:
State:
Zip:
Submittal Date: Fri Jul 18 08:09:55 EDT 2014

Public Input No. 265-NFPA 25-2014 [Section No. 13.4.4.2.6]

13.4.4.2.6
Low air pressure alarms, if provided, shall be ~~tested quarterly~~ tested annually in accordance with the manufacturer's instructions.

Statement of Problem and Substantiation for Public Input

To be consistent with the NFPA 72 inspection, testing and maintenance, technical committee action at the recent second revision meeting to change all electrically connected water-based fire protection system initiating device supervisory alarm switches (control valve, air pressure, room termperature, water level and water temperature) listed in Table 14.4.3.2, Item 17(J) to an annual frequency.

Submitter Information Verification

Submitter Full Name: Frank Van Overmeiren
Organization: FP&C Consultants, Inc.
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jul 07 14:33:43 EDT 2014

Public Input No. 214-NFPA 25-2014 [Section No. 13.6.2.3]

~~13.6.2.3 –~~
~~Where connections do not permit verification of the forward flow test at the minimum flow rate of system demand, tests shall be conducted at the maximum flow rate possible.~~

Statement of Problem and Substantiation for Public Input

This allowance has caused a lot of confusion when testing backflow prevention valves. What is the maximum flow rate possible? is it achieved by just flowing through a main drain valve? Is reversing the check valve in a FDC required to meet this allowance? The purpose of this test is to ensure the backflow preventor will sufficiently open in a fire event when flowing the system demand. The only way to do that is to make sure the full system demand is flowed, and the only way to do that is to measure the flow using a flow meter or a water flow test device. The devices available on the market today can be easily attached to a main drain connection, or a hose valve or a FDC inlet to measure the flow(s).

Submitter Information Verification

Submitter Full Name: Terry Victor
Organization: Tyco/SimplexGrinnell
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jul 03 11:25:38 EDT 2014

Public Input No. 13-NFPA 25-2013 [Section No. 13.7.1]

13.7.1

Fire department connections shall be inspected quarterly to verify the following:

(1) The fire department connections are visible and accessible.

(2) Couplings or swivels are not damaged and rotate smoothly.

(3) Plugs or caps are in place and undamaged.

(4) Gaskets are in place and in good condition.

(5) Identification signs are in place.

(6) The check valve is not leaking.

(7) The automatic drain valve is in place and operating properly.

(8) The fire department connection clapper(s) is in place and operating properly.

(9) * Interior of the connection is inspected for obstructions.

(10) The visible piping supplying the fire department connection is undamaged.

Statement of Problem and Substantiation for Public Input

Fire department connections are frequently located in areas that are subject to vehicular or other damage. The existing language focuses on the FDC itself but does not provide for visual inspection of the piping supplying the FDC. This section of piping may not be under pressure as the check valve could be located back at the riser leaving a large length of piping unpressurized and without a visual indication (leak) if the pipe suplying the FDC has been compromised by a vehicle or other incident. A quick visual inspection of the piping will assist in determining if the piping supplying the FDC has been damaged rather than waiting for the five year pressure test.

Submitter Information Verification

Submitter Full Name: Anthony Apfelbeck
Organization: Altamonte Springs Building/Fire Safety Division
Affilliation: Same
Street Address:
City:
State:
Zip:
Submittal Date: Mon Nov 18 22:32:00 EST 2013

Public Input No. 277-NFPA 25-2014 [New Section after 13.8]

Add new section 13.8 as shown and renumber existing section 13.8:

13.8 Air Compressors

13.8.1 Air compressors dedicated to water based fire protection systems shall be inspected, tested, and maintained in accordance with sections 13.8.2, 13.8.3, and 13.8.4

13.8.1.1 Air compressors not dedicated to water based fire protection systems shall be inspected, tested, and maintained in accordance with the manufacturer's instructions.

13.8.2 Inspection

13.8.1.1 Air compressors dedicated to water based fire protection systems shall be inspected monthly to verify the following:

(a) the compressor is free of physical damage.

(b) the power wiring to the compressor is intact and free of physical damage.

(c) the piping from the air compressor to the fire protection system is intact and free of physical damage.

(d) the means of anchoring the air compressor to the structure or to the system piping is secure, tight, and free of physical damage.

(e) compressors requiring oil have the required amount of oil in the oil reservoir.

13.8.3 Testing

13.8.3.1 Air compressors dedicated to water based fire protection systems shall be tested annually to verify the following:

(a) the compressor operates as intended on the proper drop of air pressure in the fire protection system.

(b) the compressor restores normal air pressure in the fire protection system in the required time frame.

(c) the compressor doesn't overheat while running.

13.8.4 Maintenance

13.8.4.1 Air compressors dedicated to water based fire protection systems shall be maintained in accordance with the manufacturer's instructions.

13.8.4.2 Compressors requiring oil shall have the oil replaced on an annual basis unless the manufacturer's instructions require more frequent replacement.

Additional Proposed Changes

File Name	Description	Approved
25_Victor_PI_xxx_-_new_Air_Compressor_Requirements.pdf	PI Form	

Statement of Problem and Substantiation for Public Input

NFPA 25 lacks sufficient guidance and requirements on how to maintain air compressors used for dry and preaction systems, especially those dedicated for fire protection systems. The new proposed text describes the minimum requirements for ITM and also refers to the manufacturer’s instructions. Changes will also be needed to sections in NFPA 25 that mention air compressors, which are covered under separate PIs.

Submitter Information Verification

Submitter Full Name: Terry Victor
Organization: SimplexGrinnell
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jul 10 07:38:42 EDT 2014

Public Input No. 253-NFPA 25-2014 [Section No. 14.2.1.1]

14.2.1.1
An assessment of the internal condition of piping shall be conducted at a minimum of every 5 years or in accordance with 14.2.1.2 for the purpose of inspecting for the presence of foreign organic and inorganic material. Where historical data indicates longer intervals between assessments shall be permitted.

Statement of Problem and Substantiation for Public Input

Draining a system and pulling it apart every 5 years (or even NDE methods) doesn't make financial sense when analyzing factual data. Internally examining these systems is time consuming, a disruption to operations, and costly. A five year frequency for this "assessment" task is not warranted based on data.

Client data from a study of a large industrial manufacturing campus in the Midwest has revealed that age of sprinkler systems is the primary indicator of internal blockage of piping systems. A total of 71 sprinkler systems were internally examined over a 9 year time frame at this manufacturing site. This population was predominately wet pipe systems (57), preaction (6), and dry pipe (8). The following definitions were used in classifying the status of the piping systems.
As systems approach 20 years in age, the majority of obstruction observations start to occur.

I acknowledge the standard does allow the creation of a "frequency" based on an "approved" risk analysis in section 14.2.1.2. One could argue that this data might fall into supporting this risk analysis, but this risk analysis would still require the "approval" of an AHJ and not automatically lessen the burden on property owners. I believe this section should be amended to allow for decision making regarding the frequency based on passed data without the need for an approved "risk analysis".

The committee already allows this approach to testing sprinklers in 5.3.1.1.3.

Further research of passed ROC and ROP arguments shows that the original 5 year internal assessment frequency established in 2002 was not based on technical data.

NOTE: Supporting material is available for review at NFPA Headquarters.

Submitter Information Verification

Submitter Full Name: DALE LEWIS
Organization: MARSH USA
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jul 07 11:09:14 EDT 2014

Public Input No. 15-NFPA 25-2013 [Section No. 14.3.1]

14.3.1 * .

An obstruction investigation shall be conducted for system or yard main piping wherever any of the following conditions exist:

(1) Defective intake for fire pumps taking suction from open bodies of water

(2) The discharge of obstructive material during routine water tests

(3) Foreign materials in fire pumps, in dry pipe valves, or in check valves

(4) Foreign material in water during drain tests or plugging of inspector's test connection(s)

(5) Unknown materials are heard in the system piping during draining, refilling, or otherwise flowing water through the system

(6) Plugged sprinklers

(7) The presence of sufficient foreign organic or inorganic material is found in the pipe

(8) Failure to flush yard piping or surrounding public mains following new installations or repairs

(9) A record of broken public mains in the vicinity

(10) Abnormally frequent false tripping of a dry pipe valve(s)

(11) A system that is returned to service after an extended shutdown (greater than 1 year)

(12) There is reason to believe that the sprinkler system contains sodium silicate or highly corrosive fluxes in copper systems

(13) A system has been supplied with raw water via the fire department connection

(14) Pinhole leaks

(15) A 50 percent increase in the time it takes water to travel to the inspector's test connection from the time the valve trips during a full flow trip test of a dry pipe sprinkler system when compared to the original system acceptance test

(16) When a dry pipe system operates for any reason except a fire in a freezer, a cooler, or where any part of the system is in an unheated space and temperatures are below 32°F (0°C) at the time of the system operation.

Statement of Problem and Substantiation for Public Input

Ice forms inside metallic piping when water enters a dry or preaction system and the ambient air temperature and the temperature of the piping is below 32°F (0°C). The colder the ambient air temperature, the quicker ice will form and coat the interior of the piping as well as forming ice plugs. When the system is eventually drained the ice coating or ice build up will remain until the piping and ambient temperatures warm to above 32°F (0°C). The ice will eventually melt and then can refreeze in low points with the refreeze unknown to the owner/occupant/manager. The owner/manager/operator of the facility would not be aware of this potential problem, but the responding contractor would be. In addition, depending on the thickness of the ice that has formed, or the ice plug that has formed, the ice can constitute an obstruction that can be detrimental to system performance in the event of a subsequent fire. Air used to "blow out" the piping would not necessarily indicate the presence or lack of ice on the interior pipe walls throughout the system.

Submitter Information Verification

Submitter Full Name: SCOTT FUTRELL
Organization: FUTRELL FIRE CONSLT
Affilliation: None
Street Address:
City:
State:
Zip:
Submittal Date: Mon Nov 25 09:12:03 EST 2013

Public Input No. 16-NFPA 25-2013 [Section No. 14.4]

14.4 Ice Obstruction.

Dry pipe or preaction sprinkler system piping that protects or passes through freezers or cold storage rooms shall be inspected internally on an annual basis for ice obstructions at the point where the piping enters the refrigerated area.

14.4.1

Alternative nondestructive examinations shall be permitted.

14.4.2

All penetrations into the cold storage areas shall be inspected and, if an ice obstruction is found, additional pipe shall be examined to ensure no ice blockage exists.

14.4.3

When dry pipe or preaction sprinkler systems operate in freezers, coolers, or any other unheated spaces, areas, or rooms where temperatures are 32°F (0°C) or below an ice obstruction investigation is required.

14.4.4

When dry pipe or preaction sprinkler systems operate in freezers, coolers, or any other unheated spaces, areas, or rooms where temperatures are 32°F (0°C) or below, a sprinkler contractor shall inform the owner that: 1) water and ice may remain in the stystem; 2) that an ice obstruction investigation should be undertaken; and 3) that low point drains should be drained daily until water no longer flows from the drains and the weather warms above freezing (in the case of dry systems in winter).

Statement of Problem and Substantiation for Public Input

Ice forms inside metallic piping when water enters a dry or preaction system and the ambient air temperature and the temperature of the piping is below 32°F (0°C). The colder the ambient air temperature, the quicker ice will form and coat the interior of the piping as well as forming ice plugs. When the system is eventually drained the ice coating or ice build up will remain until the piping and ambient temperatures warm to above 32°F (0°C). The ice will eventually melt and then can refreeze in low points with the refreeze unknown to the owner/occupant/manager. The owner/manager/operator of the facility would not be aware of this potential problem, but the responding contractor would be. In addition, depending on the thickness of the ice that has formed, or the ice plug that has formed, the ice can constitute an obstruction that can be detrimental to system performance in the event of a subsequent fire. Air used to "blow out" the piping would not necessarily indicate the presence or lack of ice on the interior pipe walls throughout the system.

Finally, draining of low point drains needs to be explicitly explained to the owner/occupant by the experts (sprinkler contractors) that are contacted to assist the owner/occupant with returning the sprinkler systems to service and operation.

Submitter Information Verification

Submitter Full Name: SCOTT FUTRELL
Organization: FUTRELL FIRE CONSULT & DESIGN, INC.
Affilliation: None
Street Address:
City:
State:
Zip:
Submittal Date: Mon Nov 25 09:26:26 EST 2013

Public Input No. 34-NFPA 25-2013 [Section No. 15.2.2]

15.2.2

In the absence of a specific designee, the property owner or designated representative shall be considered the impairment coordinator.

15.2.2.1 Where a designated respresentative is responsible for inspection, testing and maintenance and such representative discovers an impairment, the designated representiative shall inform the owner of the impairment and the owner's responsibility to comply with section 15.5.

Statement of Problem and Substantiation for Public Input

In many cases, an owner will not be aware of their responsibilities as an impairment coordinator under section 15.5. The designated representative conducting ITM has this knowledge and should be responsible for passing along this knowledge to the impairment coordinator/owner so appropriate action can be taken to mitigate the impairment.

Submitter Information Verification

Submitter Full Name: Anthony Apfelbeck
Organization: Altamonte Springs Building/Fire Safety Division
Street Address:
City:
State:
Zip:
Submittal Date: Fri Dec 27 16:49:03 EST 2013

Public Input No. 139-NFPA 25-2014 [New Section after 15.3]

TITLE OF NEW CONTENT

Type your content here ...Contractor performing inspection testing or maintenance that discovers an impairment shall apply imparment tag per 15.3.2 and notify property impairment coordinator and fire department.

Statement of Problem and Substantiation for Public Input

The inspecting, testing and maintenance contractor often discovers impairments, When this happens the contractor should start the impairment process for those impairments by placing tags and notifying impairment coordinator and fire department. Current system often relies on person not finding impairment to do tagging.

Submitter Information Verification

Submitter Full Name: M MYERS
Organization: MYERS RISK SVCS
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jun 17 20:19:45 EDT 2014

Public Input No. 33-NFPA 25-2013 [Section No. 16.2]

16.2 ~~Small Residential Board and Care Occupancies~~ 13D Systems Utilized in Occupancies Other than One-and Two-Family Dwellings .

16.2.1

The requirements in this section shall only apply ~~to residential board and care facilities with sprinkler~~ to sprinkler systems installed in accordance with NFPA 13D, *Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes*, ~~as described in NFPA *101* , *Life Safety Code*~~ in an occupancy other than a One- and Two-Family Dwelling or Manufactures Home .

16.2.1.1

Systems installed in accordance with NFPA 13D, *Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes*, shall be inspected, tested, and maintained in accordance with ~~33~~ 16 .2.~~3~~ 1 ~~.5.8.~~ 1 through ~~33~~ 16 .2.3 1 .5 1 ~~.8.~~ 15 ~~of NFPA *101* , which reference specific sections of NFPA 25. The frequency of the inspection, test, or maintenance shall be in accordance with [NFPA *101*], whereas the purpose and procedure shall be from NFPA 25. [*101* :33.2.3.5.8]~~ .

16.2.1.1.1

Control valves shall be inspected monthly in accordance with 13.3.2 of NFPA 25. [*101* - :33.2.3.5.8.1]

16.2.1.1.2

Gages shall be inspected monthly in accordance with 13.2.7.1 of NFPA 25. [*101* - :33.2.3.5.8.2]

16.2.1.1.3

Alarm devices shall be inspected quarterly in accordance with 5.2.5 of NFPA 25. [*101* - :33.2.3.5.8.3]

16.2.1.1.4

Alarm devices shall be tested semiannually in accordance with 5.3.3 of NFPA 25. [*101* - :33.2.3.5.8.4]

16.2.1.1.5

Valve supervisory switches shall be tested semiannually in accordance with 13.3.3.5 of NFPA 25. [*101* - :33.2.3.5.8.5]

16.2.1.1.6

Visible sprinklers shall be inspected annually in accordance with 5.2.1 of NFPA 25. [*101* - :33.2.3.5.8.6]

16.2.1.1.7

Visible pipe shall be inspected annually in accordance with 5.2.2 of NFPA 25. [*101* - :33.2.3.5.8.7]

16.2.1.1.8

Visible pipe hangers shall be inspected annually in accordance with 5.2.3 of NFPA 25. [*101* - :33.2.3.5.8.8]

16.2.1.1.9

Buildings shall be inspected annually prior to the onset of freezing weather to ensure that there is adequate heat wherever water-filled piping is run in accordance with 5.2.5 of NFPA 25. [*101* - :33.2.3.5.8.9]

16.2.1.1.10

A representative sample of fast-response sprinklers shall be tested once the sprinklers in the system are 20 years old in accordance with 5.3.1.1.1.3 of NFPA 25. If the sample fails the test, all of the sprinklers represented by that sample shall be replaced. If the sprinklers pass the test, the test shall be repeated every 10 years thereafter. [*101* - :33.2.3.5.8.10]

16.2.1.1.11

A representative sample of dry-pendent sprinklers shall be tested once the sprinklers in the system are 10 years old in accordance with 5.3.1.1.1.6 of NFPA 25. If the sample fails the test, all of the sprinklers represented by that sample shall be replaced. If the sprinklers pass the test, the test shall be repeated every 10 years thereafter. [*101* - :33.2.3.5.8.11]

16.2.1.1.12

Antifreeze solutions shall be tested annually in accordance with 5.3.4 of NFPA 25. [*101* - :33.2.3.5.8.12]

16.2.1.1.13

Control valves shall be operated through their full range and returned to normal annually in accordance with 13.3.3.1 of NFPA 25. [*101* - :33.2.3.5.8.13]

16.2.1.1.14

Operating stems of OS&Y valves shall be lubricated annually in accordance with 13.3.4 of NFPA 25. [*101* - :33.2.3.5.8.14]

16.2.1.1.15

Dry-pipe systems that extend into the unheated portions of the building shall be inspected, tested, and maintained in accordance with 13.4.4 of NFPA 25. [*101* :33.2.3.5.8.15]

Statement of Problem and Substantiation for Public Input

There are numberous occupancies, other than Small Residential Board and Care Facilities, where 13D systems are being utilzed but the occupancies are not one- and two familly dwellings. These installations are code compliant. As an example, the IBC permits in dwelling care facilities with 5 persons or less and the IRC permits Live/Work Units and Owner Occupied lodging houses with five or fewer residents. In addition, NFPA 101 permits numerous other exceptions to one-and two-family dwelling application. In these applications, not originally contemplated by the standard, a differnt level of care exists. In the applications that are similar to Small Residential Board and Care Facilities, it is appropriate to extent the ITM requirments current in this section to the 13D systems installed in occupancies that are outside of the traditional One-and Two-Family Dwelling.

Submitter Information Verification

Submitter Full Name: Anthony Apfelbeck
Organization: Altamonte Springs Building/Fire Safety Division
Street Address:
City:
State:
Zip:
Submittal Date: Fri Dec 27 16:08:44 EST 2013

Public Input No. 152-NFPA 25-2014 [Section No. 16.2.1.1.9]

~~16.2.1.1.9 –~~
~~Buildings shall be inspected annually prior to the onset of freezing weather to ensure that there is adequate heat wherever water-filled piping is run in accordance with 5.2.5 of NFPA 25. [- ***101*** - :33.2.3.5.8.9]~~

Statement of Problem and Substantiation for Public Input

This P.I.seeks to delete section 16.2.1.1.9 which deals with inspecting buildings to ensure water-filled piping won't freeze. This issue is the owners responsibility and is addressed in section 4.1.2.

This section is in Chapter 16 which is titled "Special Requirements from Other NFPA Documents. This specific section is extracted from NFPA 101, however the text and reference are incorrect. Section 5.2.5 of NFPA 25 which is referenced in this section deals with inspection of waterflow alarms and supervisory signal initiating devices. This is an incorrect reference and is not the intent of section 16.2.1.1.9. As this section is extracted from NFPA 101, the text and incorrect reference cannot be updated. The next opportunity to fix this in NFPA 101 will be the 2018 edition. Until then this section should be deleted.

Submitter Information Verification

Submitter Full Name: Roland Asp
Organization: National Fire Sprinkler Association
Affilliation: NFSA E&S Committee
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jun 30 09:18:28 EDT 2014

Public Input No. 204-NFPA 25-2014 [New Section after 16.2.1.1.15]

16.3 Aircraft Hangers

16.3.1 Inspection and testing of fire protection systems in aircraft hangers shall be performed in accordance with NFPA 25 as modified be Table 16.3.1. [25:11.1.1]

16.3.2 All preprimed closed-head AFFF systems shall be drained, flushed, and reprimed annually. [25:11.1.2]

16.3.3 Records of inspections,tests, and test resuls shall be maintained. [25:11.1.3]

Table 16.3.1 Inspection and Testing of Hanger Fire Protection Systems

Extract Table 11.1.1 from NFPA 409 and rename Table 16.3.1

Additional Proposed Changes

File Name	Description	Approved
NFPA_409_Table_11.1.1.pdf	Table 11.1.1 from NFPA 409 to be extracted to NFPA 25 and renamed Table 16.3.1	

Statement of Problem and Substantiation for Public Input

NFPA 409 references NFPA 25 in section 11.1.1 and then modifies the language of NFPA 25 in Table 11.1.1.

This P.I. seeks to extract the language of NFPA 409, section 11.1, including Table 11.1.1 into Chapter 16 of NFPA 25. Chapter 16 is titled "Special Requirements from Other NFPA Documents" and is the appropriate location for this section.

Submitter Information Verification

Submitter Full Name: Roland Asp
Organization: National Fire Sprinkler Association
Affilliation: NFSA E&S Committee
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jul 03 08:23:48 EDT 2014

Table 11.1.1 Inspection and Testing of Hangar Fire Protection Systems

System Components	Type and Frequency of Inspections and Tests					
	Weekly	Monthly	Semi- annually	Annually	Quarterly	Every 5 Years
Sprinkler heads	—	—	—	V	—	—
Piping	—	—	—	V	—	D
Pipe hangers	—	—	—	V	—	—
Sprinkler alarm valve	—	V	—	—	O[1]	—
Deluge valve	—	V	—	O	—	D
Shutoff valves	—	V	—	F	—	—
Fire pumps	F[2]	—	—	D	—	—
Water reservoirs	—	V	—	—	—	—
Hose stations	—	V	—	—	—	D
Strainers	—	—	—	V	—	—
Foam concentrate	—	—	—	F	—	—
Concentrate storage tanks	—	V	—	—	—	—
Concentrate pump	F[2]	—	—	O	—	D
Concentrate control valve (automatic)	—	V	—	O	—	D
Concentrate shutoff valve	—	V	—	F	—	—
Foam proportioning device	—	V	—	—	—	D
Water-powered monitor nozzle	—	V	—	D	—	—
Electric-powered manual nozzle	—	V	—	F	—	D
Water-powered high-expansion-foam (HEF) generator	—	V	—	O	—	D
Electric-powered high-expansion-foam (HEF) generator	—	V	—	F	—	D
Pneumatic detector	—	—	F	O[3]	—	—
Electric detector	—	—	F	O[3]	—	—
Optical detector	V	—	F	O[3]	—	—
Control panels	—	V	F	O	—	—
Alarm transmission (local and remote)	—	F	—	—	—	—
Tamper switch	—	—	—	—	F	—
Flow indication switch	—	—	—	O	—	—
Supervisory alarms	—	—	F	—	—	—
Manual actuation stations	—	—	F	—	—	—
Hangar floor drain system and separators	—	V	—	—	—	D
Fire doors	—	V	—	F	—	—
Gas detectors	—	V	F	—	—	—
Ventilation system in pits, tunnels, and ducts	—	—	F	—	—	—
Grounding equipment	—	—	—	—	—	F

V: Visual inspection. D: Operational test with actual discharge. O: Operational test with flow, no discharge.
F: Functional test, no flow.
[1]For the purposes of this test, the inspector's flow valve is acceptable.
[2]Churn test.
[3]At this time it is necessary to check that the set points are the same as the original.

12.3.2 Main electrical distribution panels, metering equipment, and similar electrical equipment shall not be required to be separated from aircraft storage and servicing areas by fire-rated partitions.

12.4 Grounding Facilities for Static Electricity. Aircraft storage and servicing areas shall be provided with grounding facilities in accordance with this standard.

12.5 Protection of Unfueled Aircraft Hangars.

12.5.1 This section shall apply to all Group I and Group II hangars, and Group IV hangars with fire areas greater than 1115 m^2 (12,000 ft^2).

12.5.2* Sprinkler systems shall be either wet pipe or single-interlock preaction, designed and installed in accordance with the applicable sections of NFPA 13 and the provisions of this chapter.

Public Input No. 278-NFPA 25-2014 [New Section after 16.2.1.1.15]

16.3 Low -, Medium - , and High-Expansion Foam

16.3.1 The requirements in this section shall only apply to low -, medium - , and high-expansion foam systems installed in accordance with NFPA 11, *Standard for Low-, Medium-, and High-Expansion Foam.*

Extract **Chapter 12 Maintenance** in its entirety from NFPA 11 and renumber to match the Chapter 16 numbering scheme in NFPA 25.

Additional Proposed Changes

File Name	Description	Approved
25_Victor_PI_xxx_-_Chapter_16_New_Text_and_Extract_From_NFPA_11.pdf	PI Form	

Statement of Problem and Substantiation for Public Input

Chapter 16 of NFPA 25 was created to provide inspection, testing, and maintenance requirements of water based fire protection systems that are found in other NFPA documents, for the convenience of the users of NFPA 25.

Submitter Information Verification

Submitter Full Name: Terry Victor
Organization: SimplexGrinnell
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jul 10 09:40:28 EDT 2014

Public Input No. 279-NFPA 25-2014 [New Section after 16.2.1.1.15]

16.4 Aircraft Hangers

16.4.1 The requirements in this section shall only apply to water-based fire protection systems in aircraft hangars installed in accordance with NFPA 409, *Standard on Aircraft Hangars.*

Extract **Chapter 11 Periodic Inspection and Testing** in its entirety including Table 11.1.1 from NFPA 409 and renumber to match the Chapter 16 numbering scheme in NFPA 25.

Additional Proposed Changes

File Name	Description	Approved
25_Victor_PI_xxx_-_Chapter_16_New_Text_and_Extract_From_NFPA_409.pdf	PI Form	

Statement of Problem and Substantiation for Public Input

Chapter 16 of NFPA 25 was created to provide inspection, testing, and maintenance requirements of water based fire protection systems that are found in other NFPA documents, for the convenience of the users of NFPA 25.

Submitter Information Verification

Submitter Full Name: Terry Victor
Organization: SimplexGrinnell
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jul 10 09:42:37 EDT 2014

Public Input No. 153-NFPA 25-2014 [Section No. A.3.3.7]

A.3.3.7 Deficiency.

Depending on the nature and significance of the deficiency, it can result in a system impairment. Critical deficiencies will adversely impact performance but without the need for the implementing impairment procedures. Noncritical deficiencies have the potential to impact performance.

Table A.3.3.7 provides examples for classifying conditions needing repair or correction that are identified during the inspection, testing, and maintenance of water-based suppression systems. The conditions are classified as an impairment, critical deficiency, or noncritical deficiency. The table is not all-inclusive but is included to provide guidance in responding to these conditions. For example, an impairment should be addressed promptly by either immediately correcting the condition or implementing the impairment procedures found in Chapter 15. Critical and noncritical deficiencies should be corrected as soon as practical after considering the nature and severity of the risk. It should be noted that many jurisdictions have requirements for the timely correction of impairments and/or deficiencies.

Table A.3.3.7 Water-Based Fire Protection System Inspection and Testing Findings

Item	Finding	Reference	Impairment	Critical Deficiency	Noncritical Deficiency
Chapter 5: Sprinkler Systems — Inspection					
All sprinklers	Leaking — spraying or running water	5.2.1.1.1	X		
All sprinklers	Leaking — dripping water	5.2.1.1.1		X	
All sprinklers	Foreign material attached or suspended from	5.2.1.1.1	X		
All sprinklers	Damaged	5.2.1.1.1	X		
All sprinklers	Spray pattern obstructed — less than 18 in. (457 mm) or 36 in. 915 mm) below deflector (stock, furnishings, and equipment), temporary or nonpermanent (signs, banners, decorations, etc.)	5.2.1.1.1		X	
All sprinklers	Lightly loaded	5.2.1.1.1			X
Standard-response sprinklers in nonresidential occupancies	One sprinkler and less than 50% of sprinklers in compartment is heavily loaded or corroded; painted operating element, bulb, deflector, or coverplate; improper orientation; glass bulb has lost fluid	5.2.1.1.1		X	
Standard-response sprinklers in nonresidential occupancies	Two or more sprinklers in compartment are heavily loaded or corroded; painted operating element, bulb, deflector, or coverplate; improper orientation; glass bulb has lost fluid	5.2.1.1.1	X		
Fast-response element, quick-response, residential sprinklers and standard-response in residential occupancies	Any sprinklers, heavily loaded or corroded; painted operating element, bulb, deflector, or coverplate; improper orientation; glass bulb has lost fluid	5.2.1.1.1	X		
Coverplates	Concealed sprinkler coverplates caulked or glued to ceiling	5.2.1.1.1	X		
Escutcheons and coverplates	Missing recessed or flush escutcheons, concealed coverplate with deflector and operating element in correct position	5.2.1.1.6			X
Escutcheons and coverplates	Missing recessed or flush escutcheons, concealed coverplate with deflector and operating element not in correct position	5.2.1.1.6	X		
Escutcheons	Recessed or flush escutcheons caulked or glued to ceiling	5.2.1.1.1		X	
Spare sprinkler cabinet	Cabinet missing, temperature over 100°F, not proper number and type, missing wrench for each type	new 5.2.1.3(1), 5.2.1.3(2)			X
Pipe and fittings	Leaking — slowly dripping and/or moisture on surface	5.2.2.1		X	
Pipe and fittings	Leaking — spraying or running water	5.2.2.1	X		
Pipe and fittings	Critical mechanical damage			X	
Hangers and seismic braces	Damaged or loose	5.2.3.2			X
Hangers and seismic braces	Unattached	5.2.3.2		X	
Gauges	Poor condition	5.2.4.1			X
Gauges	Not showing normal water/air pressure	5.2.4.1, 5.2.4.2		X	
Gauges	Freezer — system pressure lower than compressor	5.2.4.4	X		
Alarm devices	Physical damage apparent	5.2.5			X
Hydraulic design information sign	Not attached properly, illegible or missing	5.2.6			X
Information sign	Not attached, illegible or missing	new			X
Heat tape	Not in accordance with manufacturer's instructions	5.2.7		X	
Chapter 5: Sprinkler Systems — Testing					
Gauges	Not replaced or calibrated in 5 years, not accurate within 3% of scale	5.3.2			X
Alarm devices	Water motor and gong not functioning	5.3.3			X
Alarm devices	Pressure switch– or vane-type switch not functioning or no alarm	5.3.3		X	
Antifreeze systems	Mixture and concentration does not meet requirements of 5.3.4.2.1	5.3.4		X	
Antifreeze systems	Concentration is inadequate to prevent freezing	Table A.5.3.4.2.1(1)	X		
Main drain	More than 10% drop in full flow pressure	13.2.5.2		X	
Assessment of internal condition	Inspection revealed presence of MIC, zebra mussels, rust, and scale	14.2.1		X	
Chapter 6: Standpipe and Hose Systems — Inspection					
Pipe and fittings	Leaking — slowly dripping and/or moisture on surface	6.2.1		X	
Pipe and fittings	Leaking — spraying or running water	6.2.1	X		
Pipe and fittings	Critical mechanical damage	6.2.1		X	
Hose	Cuts, couplings not of compatible threads	6.2.1, NFPA 1962		X	
Hose	Deterioration, no gasket or damaged gaskets	6.2.1, NFPA 1962		X	
Hose	Mildew present, corrosion present, hose not connected	6.2.1, NFPA 1962			X
Hose nozzle	Missing, broken parts or thread gasket damaged	6.2.1, NFPA 1962		X	
Hose storage	Hose not properly racked or rolled, nozzle clip missing, nozzle not contained, damaged, obstructed	6.2.1, NFPA 1962		X	

Item	Finding	Reference	Impairment	Critical Deficiency	Noncritical Deficiency
Cabinet	Corroded or damaged parts, not easy to open, not accessible, not identified, door glazing in poor condition, lock not functioning in break glass type, valve, hose nozzle, fire extinguisher, etc. not readily accessible	6.2.1, NFPA 1962		X	
Hydraulic design information sign	Missing	6.2.3			X
Chapter 6: Standpipe and Hose Systems — Testing					
Hose storage device	Rack will not swing out of cabinet at least 90 degrees	6.2.1, NFPA 1962			X
Standpipe system	Test results did not provide design pressure at required flow	6.3.1.1		X	
Hydrostatic test of manual and semiautomatic dry standpipe systems	Leakage in inside piping	6.3.2			X
Main drain	More than 10% drop in full flow pressure	6.3.1.5		X	
Assessment of internal condition	Inspection revealed presence of MIC, zebra mussels, rust, and scale	14.2.1		X	
Chapter 7: Private Fire Service Mains — Inspection					
Exposed piping	Leaking — slowly dripping, and/or moisture on surface	7.2.2.1.2		X	
Exposed piping	Leaking — spraying or running water	7.2.2.1.2	X		
Exposed piping	Mechanical damage, corroded, not properly restrained	7.2.2.1.2		X	
Mainline strainers	Plugged, fouled	7.2.2.3	X		
Mainline strainers	Corroded	7.2.2.3		X	
Dry barrel, wet barrel, and wall hydrant	Inaccessible, barrel contains ice, cracks in barrel	7.2.2.4	X		
Dry barrel, wet barrel, and wall hydrant	Barrel contains water, improper drainage from barrel, leaks at outlets or top of hydrant	7.2.2.4		X	
Dry barrel, wet barrel, and wall hydrant	Tightness of outlets, worn nozzle threads, worn operating nut, missing wrench	7.2.2.4			X
Monitor nozzles	Damaged, corroded, leaking	7.2.2.6		X	
Hose/hydrant houses	Inaccessible	7.2.2.7	X		
Hose/hydrant houses	Damaged	7.2.2.7		X	
Hose/hydrant houses	Not fully equipped	7.2.2.7			X
Chapter 7: Private Fire Service Mains — Testing					
Underground and exposed piping	Test results not comparable to previous results	7.3.1		X	
Dry barrel and wall hydrant	Hydrant did not flow clear or did not drain within 60 minutes	7.3.2.1, 7.3.2.4			X
Monitor nozzles	Did not flow acceptable amount of water, did not operate throughout their full range	7.3.3.1 7.3.3.2		X	
Chapter 8: Fire Pumps — Inspection					
Pump house/room	Ventilating louvers not free to operate	8.2.2		X	
Pump house/room	Heat not adequate, temperature less than 40°F	8.2.2(1)	X		
Pump house/room	Heat not adequate, temperature less than 70°F for diesel pumps without engine heaters	8.2.2(1)	X		
Pump house/room	Heat not adequate, temperature less than 40°F, not as recommended by the engine manufacturer, for diesel pumps with engine heaters	8.2.2(1)	X		
Pump system	Suction, discharge, or bypass valves not fully open, pipe leaking, suction line and system line pressure not normal, wet pit suction screens obstructed	8.2.2	X		
Pump system suction	Reservoir empty	8.2.2	X		
Pump system	Suction reservoir does not have required water level, wet pit suction screens missing	8.2.2		X	
Pump system	Minor leaking or drips on floor	8.2.2(2)			X
Pump system	Suction, discharge, or bypass valves not fully open, major leaking such as spraying or leaking to extent that pump performance might be questioned	8.2.2(2)	X		
Electrical power to pump system	No electrical power — controller pilot light not illuminated, transfer switch pilot light not illuminated, isolating switch not closed, reverse phase alarm pilot light on or normal phase light is off, oil level in vertical motor sight glass not normal	8.2.2(3)	X		
Electrical power to pump system	Electrical power is provided — controller pilot light not illuminated, transfer switch pilot light not illuminated, reverse phase alarm pilot light on, normal phase light is not illuminated	8.2.2(3)			X
Electrical power to pump system	Circuit breakers and fuses tripped/open	8.2.2(3)	X		
Diesel engine system	Fuel tank empty	8.2.2	X		
Diesel engine system	Alarm pilot lights are on	8.2.2(4)		X	
Diesel engine system	Battery charging current not normal	8.2.2(4)		X	
Diesel engine system	Battery failure pilot lights on	8.2.2(4)		X	
Diesel engine system	Battery pilot lights off	8.2.2(4)		X	
Diesel engine system	Battery terminals corroded	8.2.2(4)		X	
Diesel engine system	Battery voltage readings not normal	8.2.2(4)		X	
Diesel engine system	Controller selector switch not in auto position	8.2.2(4)	X		
Diesel engine system	Cooling water level not normal	8.2.2(4)			X
Diesel engine system	Cooling water level not visible	8.2.2(4)		X	
Diesel engine system	Crankcase oil level not normal	8.2.2(4)			X
Diesel engine system	Crankcase oil level below low level	8.2.2(4)	X		

Item	Finding	Reference	Impairment		Critical Deficiency	Noncritical Deficiency
Diesel engine system	Electrolyte level in batteries not normal	8.2.2(4)				X
Diesel engine system	Electrolyte level in batteries below top of battery plates	8.2.2(4)			X	
Diesel engine system	Engine running time meter not reading	8.2.2(4)				X
Diesel engine system	Fuel tank less than two-thirds full	8.2.2(4)			X	
Diesel engine system	Water-jacket heater not operating	8.2.2(4)			X	
Diesel engine system	Oil level in right angle gear drive not normal (not at level mark but visible in sight glass)	8.2.2(4)				X
Diesel engine system	Oil level in right angle gear drive below low level (not visible in sight glass or below one finger knuckle for inspection hole)	8.2.2(4)			X	
Steam system	Steam pressure gauge reading not normal	8.2.2			X	
Chapter 8: Fire Pumps — Testing						
Fire pump test	Pump did not start automatically	8.3.2.2	X			
	Pump failed to run for 10 minutes	8.3.2.3		X		
	Pump failed to run for 30 minutes	8.3.2.4		X		
Fire pump test — pump system	System suction and discharge gauge reading, or pump starting pressure not acceptable	8.3.2.8(1)			X	
Fire pump test — pump system	Pump packing gland discharge not acceptable, unusual noise or vibration, packing boxes, bearings, or pump casing overheating	8.3.2.8(1)			X	
Fire pump test — electrical motor–driven system	Time for motor to accelerate to full speed, time controller is on first step, or time pump runs after starting not acceptable	8.3.2.8(2)	X			
Fire pump test — diesel engine–driven system	Time for engine to crank and time for engine to reach running speed not acceptable (engine to reach rated speed within 20 seconds per 11.2.7.1 of NFPA 20, 2013 edition)	8.3.2.8(3)			X	
Fire pump test — diesel engine–driven system	Low rpm	8.3.2.8(3)	X			
Fire pump test — diesel engine–driven system	Low oil pressure, high temperature, high cooling water pressure	8.3.2.8(3)			X	
Fire pump test — diesel engine–driven system	Time for engine to crank and time for engine to reach running speed not acceptable, low rpm, low oil pressure, high temperature, high cooling water pressure	8.3.2			X	
Fire pump test — steam system	Gauge reading and time for turbine to reach running speed not acceptable	8.3.2			X	
Fire pump test — steam system	Gauge reading and time for turbine to reach running speed not acceptable	8.3.2.8(4)	X			
Fire pump annual test	Circulation relief valve and/or pressure relief valve did not work properly at churn condition	8.3.3.2(1)			X	
Fire pump annual test	Pressure relief valve did not work properly at each flow condition	8.3.3.3			X	
Fire pump annual test (with transfer switch)	Overcurrent protective devices opened when simulating a power failure condition at peak load, power not transferred to alternate source, pump did not continue to perform at peak load, pump did not reconnect to normal power after removing power failure condition	8.3.3.4	X			
Fire pump annual test	Alarms did not properly operate	8.3.3.5			X	
Pump house/room	Heating, lighting, ventilating systems did not pass test	8.3.4.3			X	
Fire pump annual test	Parallel or angular alignment not correct	8.3.4.4			X	
Fire pump annual test	Flow test results not within 5% of acceptance test or nameplate	8.3.5.4			X	
Fire pump annual test	Voltage readings at motor not within 5% below or 10% above rated (nameplate)	8.3.5.6			X	
Fire pump annual test	Flow test results not within 5% of initial unadjusted acceptance test or nameplate	8.3.5.4			X	
Chapter 9: Water Storage Tanks — Inspection						
Water level	Water level and/or condition not correct	9.2.1			X	
Water level	Tank is empty	9.2.1	X			
Air pressure	Air pressure in pressure tanks not correct	9.2.2	X			
Heating system	Heating system not operational, water temperature below 40°F	9.2.3			X	
Heating system	Water temperature at or below 32°F	9.2.3	X			
Exterior	Tank exterior, supporting structure, vents, foundation, catwalks, or ladders where provided damaged	9.2.5.1				X
Exterior	Area around tank has fire exposure hazard in form of combustible storage, trash, debris, brush, or material	9.2.5.2				X
Exterior	Accumulation of material on or near parts that could result in accelerated corrosion or rot	9.2.5.2				X
Exterior	Ice buildup on tank and support	9.2.5.2			X	
Exterior	Erosion exists on exterior sides or top of embankments supporting coated fabric tanks	9.2.5.2				X
Exterior	Expansion joints leaking or cracking	9.2.5.3			X	
Exterior	Hoops and grilles of wooden tanks in poor condition	9.2.5.4				X
Exterior	Exterior painted, coated, or insulated surfaces of tanks or supporting structure degraded	9.2.5.5				X
Interior (pressure tanks or steel tanks w/o corrosion protection every 3 years, all others every 5 years)	Pitting, corrosion, spalling, rot, other forms of deterioration, waste materials exist, aquatic growth, local or general failure of interior coating	9.2.6.3				X
Interior (pressure tanks or steel tanks w/o corrosion protection every 3 years, all others every 5 years)	Voids beneath floor, with sand in middle of tanks on ring-type foundations	9.2.6.5				X

Item	Finding	Reference	Impairment	Critical Deficiency	Noncritical Deficiency
Interior (pressure tanks or steel tanks w/o corrosion protection every 3 years, all others every 5 years)	Heating system components or piping in poor condition but working	9.2.6.6			X
Interior (pressure tanks or steel tanks w/o corrosion protection every 3 years, all others every 5 years)	Heating system components or heating system piping in poor condition and not working	9.2.6.6	X		
Interior (pressure tanks or steel tanks w/o corrosion protection every 3 years, all others every 5 years)	Blockage of antivortex plate	9.2.6.7	X		
Interior (pressure tanks or steel tanks w/o corrosion protection every 3 years, all others every 5 years)	Deterioration of antivortex plate	9.2.6.7		X	
Chapter 9: Water Storage Tanks — Testing					
Interior testing	Tank coating did not pass adhesion, coating thickness, or wet sponge test	9.2.7			X
Interior testing	Tank walls and bottoms did not pass ultrasonic test	9.2.7			X
Interior testing	Tank bottom seams did not pass vacuum-box test	9.2.7			X
Testing	Level indicator not tested after 5 years, lacked freedom of movement, or not accurate	9.3.1		X	
Testing	Low water temperature alarm did not pass test	9.3.3		X	
Testing	High water temperature limit switch did not pass test	9.3.4			X
Testing	High and low water level alarms did not pass test	9.3.5		X	
Gauges	Not tested in 5 years, not accurate within 3% of scale	9.3.6			X
Chapter 10: Water Spray Fixed Systems — Inspection					
Pipe and fittings	Mechanical damage, missing or damaged paint or coating, rusted or corroded, not properly aligned or trapped sections, low point drains not functioning, improper location of rubber-gasketed fittings	10.2.4.1		X	
Hangers and seismic braces	Damaged or missing, not securely attached to structural or piping, missing or damaged paint or coating, rusted or corroded	10.2.4.2		X	
Water spray nozzles	Discharge devices missing, not properly positioned or pointed in design direction, loaded or corroded	10.2.5.1		X	
Water spray nozzles	Missing caps or plugs if required, or not free to operate as intended	10.2.5.2		X	
Strainers	Strainer plugged or fouled	10.2.7	X		
Strainers	Strainer damaged or corroded	10.2.7			X
Drainage	Trap sumps and drainage trenches blocked, retention embankments or dikes in disrepair	10.2.8			X
Ultra-high-speed	Detectors have physical damage or deposits on lenses of optical detectors	10.4.2		X	
Ultra-high-speed	Controllers found to have faults	10.4.3		X	
Chapter 10: Water Spray Fixed Systems — Testing					
Operational test	Heat detection system did not operate within 40 seconds, flammable gas detection system did not operate within 20 seconds	10.3.4.1.1	X		
Operational test	Nozzles plugged	10.3.4.3.1	X		
Operational test	Nozzles not correctly positioned	10.3.4.3.1		X	
Operational test	Pressure readings not comparable to original design requirements	10.3.4.4		X	
Operational test	Manual actuation devices did not work properly	10.3.6	X		
Main drain	More than 10% drop in full flow pressure	10.3.7.1		X	
Ultra-high-speed operational test	Response time was more than 100 milliseconds	10.4.5	X		
Assessment of the internal condition	Inspection revealed presence of MIC, zebra mussels, rust, and scale	14.2.1		X	
Chapter 11: Foam-Water Sprinkler Systems — Inspection					
Alarm devices	Physical damage apparent	11.1.3.1.3			X
Pipe and fittings	Mechanical damage, missing or damaged paint or coating, rusted or corroded, not properly aligned or trapped sections, low point drains not functioning, improper location or poor condition of rubber-gasketed fittings	11.2.3		X	
Hangers and seismic braces	Damaged or missing, not securely attached to structural or piping, missing or damaged paint or coating, rusted or corroded	11.2.4		X	
Foam-water discharge devices	Discharge devices missing	11.2.5.1	X		
Foam-water discharge devices	Discharge devices not properly positioned or pointed in design direction, loaded or corroded	11.2.5.1		X	
Foam-water discharge devices	Not free to operate as intended	11.2.5.2		X	
Foam-water discharge devices	Missing caps or plugs if required	11.2.5.2		X	
Foam-water discharge devices	Incorrect foam concentrate for application and devices	11.2.5.4		X	
Foam concentrate strainers	Blow-down valve open or not plugged	11.2.7.2		X	
Drainage	Trap sumps and drainage trenches blocked, retention embankments or dikes in disrepair	11.2.8			X
Proportioning systems (all)	Proportioning system valves not in correct open/closed position in accordance with specified operating conditions	11.2.9.3	X		
Proportioning systems (all)	Concentrate tank does not have correct quantity required by original design	11.2.9.4		X	
Proportioning systems (all)	Concentrate tank empty	11.2.9.4	X		
Standard pressure proportioner	Automatic drains (ball drip valves) not free or open, external corrosion on foam concentrate tanks	11.2.9.5.1			X
Bladder tank proportioner	Water control valve to foam concentrate in “closed” position	11.2.9.5.2	X		

Item	Finding	Reference	Impairment	Critical Deficiency	Noncritical Deficiency
Bladder tank proportioner	Foam in water surrounding bladder	11.2.9.5.2	X		
Bladder tank proportioner	External corrosion on foam concentrate tank	11.2.9.5.2			X
Line proportioner	Strainer damaged, corroded, pressure vacuum vent not operating freely	11.2.9.5.3		X	
Line proportioner	Strainer plugged or fouled	11.2.9.5.3	X		
Line proportioner	External corrosion on foam concentrate tank	11.2.9.5.3			X
Standard balanced pressure proportioner	Sensing line valves not open, no power to foam liquid pump	11.2.9.5.4	X		
Standard balanced pressure proportioner	Strainer damaged, corroded, plugged, or fouled, pressure vacuum vent not operating freely, gauges damaged or not showing proper pressures	11.2.9.5.4		X	
In-line balanced pressure proportioner	Sensing line valves at pump unit or individual proportioner stations not open, no power to foam liquid pump	11.2.9.5.5	X		
In-line balanced pressure proportioner	Strainer damaged, corroded, pressure vacuum vent not operating freely, gauges damaged or not showing proper pressures	11.2.9.5.5		X	
In-line balanced pressure proportioner	Strainer plugged or fouled	11.2.9.5.5	X		
Orifice plate proportioner	No power to foam liquid pump	11.2.9.5.6	X		
Orifice plate proportioner	Strainer damaged, corroded, pressure vacuum vent not operating freely, gauges damaged or not showing proper pressures	11.2.9.5.6		X	
Orifice plate proportioner	Strainer plugged or fouled	11.2.9.5.6	X		
Chapter 11: Foam-Water Sprinkler Systems — Testing					
Alarm devices	Water motor and gong not functioning	11.1.3.1.1, 11.3.1.1		X	
Alarm devices	Pressure switch or vane-type switch not functioning or no alarm	11.1.3.1.2, 11.3.1.2		X	
Operational test	Fire detection system did not operate within requirements of *NFPA 72*	11.3.2.4		X	
Operational test	Nozzles plugged	11.3.2.6.1	X		
Operational test	Nozzles not correctly positioned	11.3.2.6.1		X	
Operational test	Pressure readings not comparable to original design requirements	11.3.2.7.3		X	
Operational test	Manual actuation devices not working properly	11.3.4	X		
Operational test	Foam sample failed concentration test	11.3.5	X		
Main drain	More than 10% drop in full flow pressure	13.2.5.2		X	
Assessment of internal condition	Inspection revealed presence of MIC, zebra mussels, rust, and scale	14.2.1		X	
Chapter 13: Valves, Valve Components, and Trim — Inspection					
Gauges	Poor condition	13.2.7.1			X
Gauges	Not showing normal water/air pressure	13.2.7.1		X	
Control valve	Improper closed position	13.3.2.2	X		
Control valve	Improper open position, leaking	13.3.2.2		X	
Control valve	Not accessible, no appropriate wrench if required, no identification	13.3.2.2			X
Control valve	Not sealed, locked, or supervised	13.3.2.2		X	
Alarm valve	External physical damage, trim valves not in appropriate open or closed position, retard chamber or alarm drain leaking	13.4.1.1		X	
Valve enclosure	Upon visual observation, enclosure not maintaining minimum 40°F (4°C) temperature	13.4.3.1.1, 13.4.4.1.1		X	
Valve enclosure	Low temperature alarms (if installed) are physically damaged	13.4.3.1.1, 13.4.4.1.1		X	
Preaction valve and deluge valve	External physical damage, trim valves not in appropriate open or closed position, valve seat leaking	13.4.3.1.6		X	
Preaction valve and deluge valve	Electrical components not in service	13.4.3.1.6	X		
Dry pipe valve/quick-opening device	External physical damage, trim valves not in appropriate open or closed position, intermediate chamber leaking	13.4.4.1.4		X	
Sprinkler pressure-reducing control valves	Not in open position	13.5.1.1	X		
Sprinkler pressure-reducing control valves	Not maintaining downstream pressures in accordance with design criteria	13.5.1.1		X	
Sprinkler pressure-reducing control valves	Leaking, valve damaged, hand wheel missing or broken	13.5.1.1		X	
Hose connection pressure-reducing valves	Hand wheel broken or missing, hose threads damaged, leaking, reducer missing	13.5.2.1		X	
Hose connection pressure-reducing valves	Cap missing	13.5.2.1			X
Hose rack assembly pressure-reducing valve	Hand wheel broken or missing, leaking	13.5.3.1		X	
Hose valves	Leaking, visible obstructions, caps, hose threads, valve handle, cap gasket, no restricting device, damaged, or in poor condition	13.5.6.1		X	
Hose valves	Hose threads not compatible	13.5.6.1	X		
Backflow prevention assemblies	Reduced-pressure assemblies, differential-sensing valve relief port continuously discharging	13.6.1.2		X	
Fire department connection	Not accessible, damaged couplings, or clapper not operating properly or missing	13.7.1	X		
Fire department connection	Couplings and swivels damaged, do not rotate smoothly, check valve leaking, automatic drain not operating properly or missing	13.7.1		X	
Fire department connection	Missing identification sign	13.7.1			X
Chapter 13: Valves, Valve Components, and Trim — Testing					

Item	Finding	Reference	Impairment	Critical Deficiency	Noncritical Deficiency
Main drain	More than 10% drop in full flow pressure	13.2.5.2		X	
Alarm devices	Water motor and gong not functioning	13.2.6.1		X	
Alarm devices	Pressure switch or vane-type switch not functioning, no alarm	13.2.6.2		X	
Gauges	Not replaced or calibrated in 5 years, not accurate within 3% of scale	13.2.7.2, 13.2.7.3			X
Control valve	Valve not operating through its full range	13.3.3.1		X	
Control valve	No spring or torsion felt in rod when opening post indicator valve	13.3.3.2	X		
Supervisory switches	No signal from two revolutions of hand wheel from normal position or when stem has moved one-fifth of distance from normal position, signal restored in position other than normal	13.3.3.5.2		X	
Preaction valve	Priming water level not correct	13.4.3.2.1		X	
Preaction valve	Pressure reading at hydraulically most remote nozzle and/or at valve not comparable to original design values	13.4.4.2.2.2		X	
Preaction valve	Three-year leakage test failed	13.4.3.2.6		X	
Deluge valve	Annual full flow trip test revealed plugged nozzles, manual actuation devices did not operate properly	13.4.3.2.2.3	X		
Deluge valve	Pressure reading at hydraulically most remote nozzle and/or at valve not compatible with original design values	13.4.3.2.2.3		X	
Preaction valve	Low air pressure switch did not send signal, no alarm	13.4.3.2.12		X	
Preaction and deluge valve	Low temperature switch did not send signal, no alarm	13.4.3.2.13		X	
Preaction valve	Automatic air maintenance device did not pass test	13.4.3.2.14			X
Dry pipe valve	Priming water level not correct	13.4.4.2.1		X	
Dry pipe valve	Test results not comparable with previous results	13.4.4.2.2		X	
Quick-opening device	Quick-opening device did not pass test	13.4.4.2.4		X	
Dry pipe valve	Low air pressure switch did not send signal, no alarm	13.4.4.2.6		X	
Dry pipe valve	Low temperature switch did not send signal, no alarm	13.4.4.2.7		X	
Dry pipe valve	Automatic air maintenance device did not pass test	13.4.4.2.8		X	
Dry pipe system	Three-year leakage test failed	13.4.4.2.9		X	
Sprinkler pressure-reducing control valves	Test results not comparable to previous results	13.5.1.2		X	
Hose connection pressure-reducing valves	Test results not comparable to previous results	13.5.2.2		X	
Hose rack assembly pressure-reducing valve	Test results not comparable to previous results	13.5.3.2		X	
Hose valves (Class I and Class III standpipe system)	Annual test revealed valve leaking or difficult to operate	13.5.6.2.1.1		X	
Hose valves (Class II standpipe system)	Test revealed valve leaking or difficult to operate	13.5.6.2.2, 13.5.6.2.2.1		X	
Backflow prevention assemblies	Did not pass forward flow test	13.6.2.1	X		

The table does not take into account every variation of the conditions needing repair or correction. For example, a single lightly painted sprinkler in a large warehouse might be noncritical in its risk while a single painted sprinkler in a battery-charging station might be considered a critical deficiency or perhaps an impairment. In addition, the nature of the hazard or the life safety exposure of the occupancy should be considered when assigning a classification. The table should be used with good judgment and could require input from the authority having jurisdiction.

Statement of Problem and Substantiation for Public Input

This P.I. seeks to add physically damaged sprinklers to the list of impairments in Table A.3.3.7. Section 5.2.1.1.1 indicates that sprinklers shall be free of physical damage and this should be indicated on Table A.3.3.7. A damaged sprinkler could easily effect it's proper operation and should be dealt with as an impairment.

Submitter Information Verification

Submitter Full Name: Roland Asp
Organization: National Fire Sprinkler Association
Affilliation: NFSA E&S Committee
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jun 30 09:33:53 EDT 2014

Public Input No. 162-NFPA 25-2014 [Section No. A.3.3.7]

A.3.3.7 Deficiency.

Depending on the nature and significance of the deficiency, it can result in a system impairment. Critical deficiencies will adversely impact performance but without the need for the implementing impairment procedures. Noncritical deficiencies have the potential to impact performance.

Table A.3.3.7 provides examples for classifying conditions needing repair or correction that are identified during the inspection, testing, and maintenance of water-based suppression systems. The conditions are classified as an impairment, critical deficiency, or noncritical deficiency. The table is not all-inclusive but is included to provide guidance in responding to these conditions. For example, an impairment should be addressed promptly by either immediately correcting the condition or implementing the impairment procedures found in Chapter 15. Critical and noncritical deficiencies should be corrected as soon as practical after considering the nature and severity of the risk. It should be noted that many jurisdictions have requirements for the timely correction of impairments and/or deficiencies.

Table A.3.3.7 Water-Based Fire Protection System Inspection and Testing Findings

Item	Finding	Reference	Impairment	Critical Deficiency	Noncritical Deficiency
Chapter 5: Sprinkler Systems — Inspection					
All sprinklers	Leaking — spraying or running water	5.2.1.1.1	X		
All sprinklers	Leaking — dripping water	5.2.1.1.1		X	
All sprinklers	Foreign material attached or suspended from	5.2.1.1.1	X		
All sprinklers	Spray pattern obstructed — less than 18 in. (457 mm) or 36 in. 915 mm) below deflector (stock, furnishings, and equipment), temporary or nonpermanent (signs, banners, decorations, etc.)	5.2.1.1.1		X	
All sprinklers	Lightly loaded	5.2.1.1.1			X
Standard-response sprinklers in nonresidential occupancies	One sprinkler and less than 50% of sprinklers in compartment is heavily loaded or corroded; painted operating element, bulb, deflector, or coverplate; improper orientation; glass bulb has lost fluid	5.2.1.1.1		X	
Standard-response sprinklers in nonresidential occupancies	Two or more sprinklers in compartment are heavily loaded or corroded; painted operating element, bulb, deflector, or coverplate; improper orientation; glass bulb has lost fluid	5.2.1.1.1	X		
Fast-response element, quick-response, residential sprinklers and standard-response in residential occupancies	Any sprinklers, heavily loaded or corroded; painted operating element, bulb, deflector, or coverplate; improper orientation; glass bulb has lost fluid	5.2.1.1.1	X		
Coverplates	Concealed sprinkler coverplates caulked or glued to ceiling	5.2.1.1.1	X		
Escutcheons and coverplates	Missing recessed or flush escutcheons, concealed coverplate with deflector and operating element in correct position	5.2.1.1.6			X
Escutcheons and coverplates	Missing recessed or flush escutcheons, concealed coverplate with deflector and operating element not in correct position	5.2.1.1.6	X		
Escutcheons	Recessed or flush escutcheons caulked or glued to ceiling	5.2.1.1.1		X	
Spare sprinkler cabinet	Cabinet missing, temperature over 100°F, not proper number and type, missing wrench for each type	new 5.2.1.3(1), 5.2.1.3(2)			X
Pipe and fittings	Leaking — slowly dripping and/or moisture on surface	5.2.2.1		X	
Pipe and fittings	Leaking — spraying or running water	5.2.2.1	X		
Pipe and fittings	Critical mechanical damage			X	
Hangers and seismic braces	Damaged or loose	5.2.3.2			X
Hangers and seismic braces	Unattached	5.2.3.2		X	
Gauges	Poor condition	5.2.4.1			X
Gauges	Not showing normal water/air pressure	5.2.4.1, 5.2.4.2		X	
Gauges	Freezer — system pressure lower than compressor	5.2.4.4	X		
Alarm devices	Physical damage apparent	5.2.5			X
Hydraulic design information sign	Not attached properly, illegible or missing	5.2.6			X
Information sign	Not attached, illegible or missing	new			X
Heat tape	Not in accordance with manufacturer's instructions	5.2.7		X	
Chapter 5: Sprinkler Systems — Testing					
Gauges	Not replaced or calibrated in 5 years, not accurate within 3% of scale	5.3.2			X
Alarm devices	Water motor and gong not functioning	5.3.3			X
Alarm devices	Pressure switch– or vane-type switch not functioning or no alarm	5.3.3		X	
Antifreeze systems	Mixture and concentration does not meet requirements of 5.3.4.2.1	5.3.4		X	
Antifreeze systems	Concentration is inadequate to prevent freezing	Table A.5.3.4.2.1(1)	X		
Main drain	More than 10% drop in full flow pressure	13.2.5.2		X	
Assessment of internal condition	Inspection revealed presence of MIC, zebra mussels, rust, and scale	14.2.1		X	
Chapter 6: Standpipe and Hose Systems — Inspection					
Pipe and fittings	Leaking — slowly dripping and/or moisture on surface	6.2.1		X	
Pipe and fittings	Leaking — spraying or running water	6.2.1	X		
Pipe and fittings	Critical mechanical damage	6.2.1		X	
Hose	Cuts, couplings not of compatible threads	6.2.1, NFPA 1962		X	
Hose	Deterioration, no gasket or damaged gaskets	6.2.1, NFPA 1962		X	
Hose	Mildew present, corrosion present, hose not connected	6.2.1, NFPA 1962			X
Hose nozzle	Missing, broken parts or thread gasket damaged	6.2.1, NFPA 1962		X	
Hose storage	Hose not properly racked or rolled, nozzle clip missing, nozzle not contained, damaged, obstructed	6.2.1, NFPA 1962		X	
Cabinet	Corroded or damaged parts, not easy to open, not accessible, not identified, door glazing in poor condition, lock not functioning in break glass type, valve, hose nozzle, fire extinguisher, etc. not readily accessible	6.2.1, NFPA 1962		X	

Item	Finding	Reference	Impairment	Critical Deficiency	Noncritical Deficiency
Hydraulic design information sign	Missing	6.2.3			X
Chapter 6: Standpipe and Hose Systems — Testing					
Hose storage device	Rack will not swing out of cabinet at least 90 degrees	6.2.1, NFPA 1962			X
Standpipe system	Test results did not provide design pressure at required flow	6.3.1.1		X	
Hydrostatic test of manual and semiautomatic dry standpipe systems	Leakage in inside piping	6.3.2			X
Main drain	More than 10% drop in full flow pressure	6.3.1.5		X	
Assessment of internal condition	Inspection revealed presence of MIC, zebra mussels, rust, and scale	14.2.1		X	
Chapter 7: Private Fire Service Mains — Inspection					
Exposed piping	Leaking — slowly dripping, and/or moisture on surface	7.2.2.1.2		X	
Exposed piping	Leaking — spraying or running water	7.2.2.1.2	X		
Exposed piping	Mechanical damage, corroded, not properly restrained	7.2.2.1.2		X	
Mainline strainers	Plugged, fouled	7.2.2.3	X		
Mainline strainers	Corroded	7.2.2.3		X	
Dry barrel, wet barrel, and wall hydrant	Inaccessible, barrel contains ice, cracks in barrel	7.2.2.4	X		
Dry barrel, wet barrel, and wall hydrant	Barrel contains water, improper drainage from barrel, leaks at outlets or top of hydrant	7.2.2.4		X	
Dry barrel, wet barrel, and wall hydrant	Tightness of outlets, worn nozzle threads, worn operating nut, missing wrench	7.2.2.4			X
Monitor nozzles	Damaged, corroded, leaking	7.2.2.6		X	
Hose/hydrant houses	Inaccessible	7.2.2.7	X		
Hose/hydrant houses	Damaged	7.2.2.7		X	
Hose/hydrant houses	Not fully equipped	7.2.2.7			X
Chapter 7: Private Fire Service Mains — Testing					
Underground and exposed piping	Test results not comparable to previous results	7.3.1		X	
Dry barrel and wall hydrant	Hydrant did not flow clear or did not drain within 60 minutes	7.3.2.1, 7.3.2.4			X
Monitor nozzles	Did not flow acceptable amount of water, did not operate throughout their full range	7.3.3.1 7.3.3.2		X	
Chapter 8: Fire Pumps — Inspection					
Pump house/room	Ventilating louvers not free to operate	8.2.2		X	
Pump house/room	Heat not adequate, temperature less than 40°F	8.2.2(1)	X		
Pump house/room	Heat not adequate, temperature less than 70°F for diesel pumps without engine heaters	8.2.2(1)	X		
Pump house/room	Heat not adequate, temperature less than 40°F, not as recommended by the engine manufacturer, for diesel pumps with engine heaters	8.2.2(1)	X		
Pump system	Suction, discharge, or bypass valves not fully open, pipe leaking, suction line and system line pressure not normal, wet pit suction screens obstructed	8.2.2	X		
Pump system suction	Reservoir empty	8.2.2	X		
Pump system	Suction reservoir does not have required water level, wet pit suction screens missing	8.2.2		X	
Pump system	Minor leaking or drips on floor	8.2.2(2)			X
Pump system	Suction, discharge, or bypass valves not fully open, major leaking such as spraying or leaking to extent that pump performance might be questioned	8.2.2(2)	X		
Electrical power to pump system	No electrical power — controller pilot light not illuminated, transfer switch pilot light not illuminated, isolating switch not closed, reverse phase alarm pilot light on or normal phase light is off, oil level in vertical motor sight glass not normal	8.2.2(3)	X		
Electrical power to pump system	Electrical power is provided — controller pilot light not illuminated, transfer switch pilot light not illuminated, reverse phase alarm pilot light on, normal phase light is not illuminated	8.2.2(3)			X
Electrical power to pump system	Circuit breakers and fuses tripped/open	8.2.2(3)	X		
Diesel engine system	Fuel tank empty	8.2.2	X		
Diesel engine system	Alarm pilot lights are on	8.2.2(4)		X	
Diesel engine system	Battery charging current not normal	8.2.2(4)		X	
Diesel engine system	Battery failure pilot lights on	8.2.2(4)		X	
Diesel engine system	Battery pilot lights off	8.2.2(4)		X	
Diesel engine system	Battery terminals corroded	8.2.2(4)		X	
Diesel engine system	Battery voltage readings not normal	8.2.2(4)		X	
Diesel engine system	Controller selector switch not in auto position	8.2.2(4)	X		
Diesel engine system	Cooling water level not normal	8.2.2(4)			X
Diesel engine system	Cooling water level not visible	8.2.2(4)		X	
Diesel engine system	Crankcase oil level not normal	8.2.2(4)			X
Diesel engine system	Crankcase oil level below low level	8.2.2(4)	X		
Diesel engine system	Electrolyte level in batteries not normal	8.2.2(4)			X
Diesel engine system	Electrolyte level in batteries below top of battery plates	8.2.2(4)		X	
Diesel engine system	Engine running time meter not reading	8.2.2(4)			X

Item	Finding	Reference	Impairment		Critical Deficiency	Noncritical Deficiency
Diesel engine system	Fuel tank less than two-thirds full	8.2.2(4)			X	
Diesel engine system	Water-jacket heater not operating	8.2.2(4)			X	
Diesel engine system	Oil level in right angle gear drive not normal (not at level mark but visible in sight glass)	8.2.2(4)				X
Diesel engine system	Oil level in right angle gear drive below low level (not visible in sight glass or below one finger knuckle for inspection hole)	8.2.2(4)			X	
Steam system	Steam pressure gauge reading not normal	8.2.2			X	
Chapter 8: Fire Pumps — Testing						
Fire pump test	Pump did not start automatically	8.3.2.2	X			
	Pump failed to run for 10 minutes	8.3.2.3		X		
	Pump failed to run for 30 minutes	8.3.2.4		X		
Fire pump test — pump system	System suction and discharge gauge reading, or pump starting pressure not acceptable	8.3.2.8(1)			X	
Fire pump test — pump system	Pump packing gland discharge not acceptable, unusual noise or vibration, packing boxes, bearings, or pump casing overheating	8.3.2.8(1)			X	
Fire pump test — electrical motor–driven system	Time for motor to accelerate to full speed, time controller is on first step, or time pump runs after starting not acceptable	8.3.2.8(2)	X			
Fire pump test — diesel engine–driven system	Time for engine to crank and time for engine to reach running speed not acceptable (engine to reach rated speed within 20 seconds per 11.2.7.1 of NFPA 20, 2013 edition)	8.3.2.8(3)			X	
Fire pump test — diesel engine–driven system	Low rpm	8.3.2.8(3)	X			
Fire pump test — diesel engine–driven system	Low oil pressure, high temperature, high cooling water pressure	8.3.2.8(3)			X	
Fire pump test — diesel engine–driven system	Time for engine to crank and time for engine to reach running speed not acceptable, low rpm, low oil pressure, high temperature, high cooling water pressure	8.3.2			X	
Fire pump test — steam system	Gauge reading and time for turbine to reach running speed not acceptable	8.3.2			X	
Fire pump test — steam system	Gauge reading and time for turbine to reach running speed not acceptable	8.3.2.8(4)	X			
Fire pump annual test	Circulation relief valve and/or pressure relief valve did not work properly at churn condition	8.3.3.2(1)			X	
Fire pump annual test	Pressure relief valve did not work properly at each flow condition	8.3.3.3			X	
Fire pump annual test (with transfer switch)	Overcurrent protective devices opened when simulating a power failure condition at peak load, power not transferred to alternate source, pump did not continue to perform at peak load, pump did not reconnect to normal power after removing power failure condition	8.3.3.4	X			
Fire pump annual test	Alarms did not properly operate	8.3.3.5			X	
Diesel fuel annual test	Failure to test diesel fuel for degradation	8.3.4				X
Diesel fuel annual test	Diesel fuel tested for degradation and failed	8.3.4	X			
Pump house/room	Heating, lighting, ventilating systems did not pass test	8.3.4.3			X	
Fire pump annual test	Parallel or angular alignment not correct	8.3.4.4			X	
Fire pump annual test	Flow test results not within 5% of acceptance test or nameplate	8.3.5.4			X	
Fire pump annual test	Voltage readings at motor not within 5% below or 10% above rated (nameplate)	8.3.5.6			X	
Fire pump annual test	Flow test results not within 5% of initial unadjusted acceptance test or nameplate	8.3.5.4			X	
Chapter 9: Water Storage Tanks — Inspection						
Water level	Water level and/or condition not correct	9.2.1			X	
Water level	Tank is empty	9.2.1	X			
Air pressure	Air pressure in pressure tanks not correct	9.2.2	X			
Heating system	Heating system not operational, water temperature below 40°F	9.2.3			X	
Heating system	Water temperature at or below 32°F	9.2.3	X			
Exterior	Tank exterior, supporting structure, vents, foundation, catwalks, or ladders where provided damaged	9.2.5.1				X
Exterior	Area around tank has fire exposure hazard in form of combustible storage, trash, debris, brush, or material	9.2.5.2				X
Exterior	Accumulation of material on or near parts that could result in accelerated corrosion or rot	9.2.5.2				X
Exterior	Ice buildup on tank and support	9.2.5.2			X	
Exterior	Erosion exists on exterior sides or top of embankments supporting coated fabric tanks	9.2.5.2				X
Exterior	Expansion joints leaking or cracking	9.2.5.3			X	
Exterior	Hoops and grilles of wooden tanks in poor condition	9.2.5.4				X
Exterior	Exterior painted, coated, or insulated surfaces of tanks or supporting structure degraded	9.2.5.5				X
Interior (pressure tanks or steel tanks w/o corrosion protection every 3 years, all others every 5 years)	Pitting, corrosion, spalling, rot, other forms of deterioration, waste materials exist, aquatic growth, local or general failure of interior coating	9.2.6.3				X
Interior (pressure tanks or steel tanks w/o corrosion protection every 3 years, all others every 5 years)	Voids beneath floor, with sand in middle of tanks on ring-type foundations	9.2.6.5				X

Item	Finding	Reference	Impairment	Critical Deficiency	Noncritical Deficiency
Interior (pressure tanks or steel tanks w/o corrosion protection every 3 years, all others every 5 years)	Heating system components or piping in poor condition but working	9.2.6.6			X
Interior (pressure tanks or steel tanks w/o corrosion protection every 3 years, all others every 5 years)	Heating system components or heating system piping in poor condition and not working	9.2.6.6	X		
Interior (pressure tanks or steel tanks w/o corrosion protection every 3 years, all others every 5 years)	Blockage of antivortex plate	9.2.6.7	X		
Interior (pressure tanks or steel tanks w/o corrosion protection every 3 years, all others every 5 years)	Deterioration of antivortex plate	9.2.6.7		X	
Chapter 9: Water Storage Tanks — Testing					
Interior testing	Tank coating did not pass adhesion, coating thickness, or wet sponge test	9.2.7			X
Interior testing	Tank walls and bottoms did not pass ultrasonic test	9.2.7			X
Interior testing	Tank bottom seams did not pass vacuum-box test	9.2.7			X
Testing	Level indicator not tested after 5 years, lacked freedom of movement, or not accurate	9.3.1		X	
Testing	Low water temperature alarm did not pass test	9.3.3		X	
Testing	High water temperature limit switch did not pass test	9.3.4			X
Testing	High and low water level alarms did not pass test	9.3.5		X	
Gauges	Not tested in 5 years, not accurate within 3% of scale	9.3.6			X
Chapter 10: Water Spray Fixed Systems — Inspection					
Pipe and fittings	Mechanical damage, missing or damaged paint or coating, rusted or corroded, not properly aligned or trapped sections, low point drains not functioning, improper location of rubber-gasketed fittings	10.2.4.1		X	
Hangers and seismic braces	Damaged or missing, not securely attached to structural or piping, missing or damaged paint or coating, rusted or corroded	10.2.4.2		X	
Water spray nozzles	Discharge devices missing, not properly positioned or pointed in design direction, loaded or corroded	10.2.5.1		X	
Water spray nozzles	Missing caps or plugs if required, or not free to operate as intended	10.2.5.2		X	
Strainers	Strainer plugged or fouled	10.2.7	X		
Strainers	Strainer damaged or corroded	10.2.7			X
Drainage	Trap sumps and drainage trenches blocked, retention embankments or dikes in disrepair	10.2.8			X
Ultra-high-speed	Detectors have physical damage or deposits on lenses of optical detectors	10.4.2		X	
Ultra-high-speed	Controllers found to have faults	10.4.3		X	
Chapter 10: Water Spray Fixed Systems — Testing					
Operational test	Heat detection system did not operate within 40 seconds, flammable gas detection system did not operate within 20 seconds	10.3.4.1.1	X		
Operational test	Nozzles plugged	10.3.4.3.1	X		
Operational test	Nozzles not correctly positioned	10.3.4.3.1		X	
Operational test	Pressure readings not comparable to original design requirements	10.3.4.4		X	
Operational test	Manual actuation devices did not work properly	10.3.6	X		
Main drain	More than 10% drop in full flow pressure	10.3.7.1		X	
Ultra-high-speed operational test	Response time was more than 100 milliseconds	10.4.5	X		
Assessment of the internal condition	Inspection revealed presence of MIC, zebra mussels, rust, and scale	14.2.1		X	
Chapter 11: Foam-Water Sprinkler Systems — Inspection					
Alarm devices	Physical damage apparent	11.1.3.1.3			X
Pipe and fittings	Mechanical damage, missing or damaged paint or coating, rusted or corroded, not properly aligned or trapped sections, low point drains not functioning, improper location or poor condition of rubber-gasketed fittings	11.2.3		X	
Hangers and seismic braces	Damaged or missing, not securely attached to structural or piping, missing or damaged paint or coating, rusted or corroded	11.2.4		X	
Foam-water discharge devices	Discharge devices missing	11.2.5.1	X		
Foam-water discharge devices	Discharge devices not properly positioned or pointed in design direction, loaded or corroded	11.2.5.1		X	
Foam-water discharge devices	Not free to operate as intended	11.2.5.2		X	
Foam-water discharge devices	Missing caps or plugs if required	11.2.5.2		X	
Foam-water discharge devices	Incorrect foam concentrate for application and devices	11.2.5.4		X	
Foam concentrate strainers	Blow-down valve open or not plugged	11.2.7.2		X	
Drainage	Trap sumps and drainage trenches blocked, retention embankments or dikes in disrepair	11.2.8			X
Proportioning systems (all)	Proportioning system valves not in correct open/closed position in accordance with specified operating conditions	11.2.9.3	X		
Proportioning systems (all)	Concentrate tank does not have correct quantity required by original design	11.2.9.4		X	
Proportioning systems (all)	Concentrate tank empty	11.2.9.4	X		
Standard pressure proportioner	Automatic drains (ball drip valves) not free or open, external corrosion on foam concentrate tanks	11.2.9.5.1			X
Bladder tank proportioner	Water control valve to foam concentrate in “closed” position	11.2.9.5.2	X		

Item	Finding	Reference	Impairment	Critical Deficiency	Noncritical Deficiency
Bladder tank proportioner	Foam in water surrounding bladder	11.2.9.5.2	X		
Bladder tank proportioner	External corrosion on foam concentrate tank	11.2.9.5.2			X
Line proportioner	Strainer damaged, corroded, pressure vacuum vent not operating freely	11.2.9.5.3		X	
Line proportioner	Strainer plugged or fouled	11.2.9.5.3	X		
Line proportioner	External corrosion on foam concentrate tank	11.2.9.5.3			X
Standard balanced pressure proportioner	Sensing line valves not open, no power to foam liquid pump	11.2.9.5.4	X		
Standard balanced pressure proportioner	Strainer damaged, corroded, plugged, or fouled, pressure vacuum vent not operating freely, gauges damaged or not showing proper pressures	11.2.9.5.4		X	
In-line balanced pressure proportioner	Sensing line valves at pump unit or individual proportioner stations not open, no power to foam liquid pump	11.2.9.5.5	X		
In-line balanced pressure proportioner	Strainer damaged, corroded, pressure vacuum vent not operating freely, gauges damaged or not showing proper pressures	11.2.9.5.5		X	
In-line balanced pressure proportioner	Strainer plugged or fouled	11.2.9.5.5	X		
Orifice plate proportioner	No power to foam liquid pump	11.2.9.5.6	X		
Orifice plate proportioner	Strainer damaged, corroded, pressure vacuum vent not operating freely, gauges damaged or not showing proper pressures	11.2.9.5.6		X	
Orifice plate proportioner	Strainer plugged or fouled	11.2.9.5.6	X		
Chapter 11: Foam-Water Sprinkler Systems — Testing					
Alarm devices	Water motor and gong not functioning	11.1.3.1.1, 11.3.1.1		X	
Alarm devices	Pressure switch or vane-type switch not functioning or no alarm	11.1.3.1.2, 11.3.1.2		X	
Operational test	Fire detection system did not operate within requirements of *NFPA 72*	11.3.2.4		X	
Operational test	Nozzles plugged	11.3.2.6.1	X		
Operational test	Nozzles not correctly positioned	11.3.2.6.1		X	
Operational test	Pressure readings not comparable to original design requirements	11.3.2.7.3		X	
Operational test	Manual actuation devices not working properly	11.3.4	X		
Operational test	Foam sample failed concentration test	11.3.5	X		
Main drain	More than 10% drop in full flow pressure	13.2.5.2		X	
Assessment of internal condition	Inspection revealed presence of MIC, zebra mussels, rust, and scale	14.2.1		X	
Chapter 13: Valves, Valve Components, and Trim — Inspection					
Gauges	Poor condition	13.2.7.1			X
Gauges	Not showing normal water/air pressure	13.2.7.1		X	
Control valve	Improper closed position	13.3.2.2	X		
Control valve	Improper open position, leaking	13.3.2.2		X	
Control valve	Not accessible, no appropriate wrench if required, no identification	13.3.2.2			X
Control valve	Not sealed, locked, or supervised	13.3.2.2		X	
Alarm valve	External physical damage, trim valves not in appropriate open or closed position, retard chamber or alarm drain leaking	13.4.1.1		X	
Valve enclosure	Upon visual observation, enclosure not maintaining minimum 40°F (4°C) temperature	13.4.3.1.1, 13.4.4.1.1		X	
Valve enclosure	Low temperature alarms (if installed) are physically damaged	13.4.3.1.1, 13.4.4.1.1		X	
Preaction valve and deluge valve	External physical damage, trim valves not in appropriate open or closed position, valve seat leaking	13.4.3.1.6		X	
Preaction valve and deluge valve	Electrical components not in service	13.4.3.1.6	X		
Dry pipe valve/quick-opening device	External physical damage, trim valves not in appropriate open or closed position, intermediate chamber leaking	13.4.4.1.4		X	
Sprinkler pressure-reducing control valves	Not in open position	13.5.1.1	X		
Sprinkler pressure-reducing control valves	Not maintaining downstream pressures in accordance with design criteria	13.5.1.1		X	
Sprinkler pressure-reducing control valves	Leaking, valve damaged, hand wheel missing or broken	13.5.1.1		X	
Hose connection pressure-reducing valves	Hand wheel broken or missing, hose threads damaged, leaking, reducer missing	13.5.2.1		X	
Hose connection pressure-reducing valves	Cap missing	13.5.2.1			X
Hose rack assembly pressure-reducing valve	Hand wheel broken or missing, leaking	13.5.3.1		X	
Hose valves	Leaking, visible obstructions, caps, hose threads, valve handle, cap gasket, no restricting device, damaged, or in poor condition	13.5.6.1		X	
Hose valves	Hose threads not compatible	13.5.6.1	X		
Backflow prevention assemblies	Reduced-pressure assemblies, differential-sensing valve relief port continuously discharging	13.6.1.2		X	
Fire department connection	Not accessible, damaged couplings, or clapper not operating properly or missing	13.7.1	X		
Fire department connection	Couplings and swivels damaged, do not rotate smoothly, check valve leaking, automatic drain not operating properly or missing	13.7.1		X	
Fire department connection	Missing identification sign	13.7.1			X
Chapter 13: Valves, Valve Components, and Trim — Testing					

Item	Finding	Reference	Impairment	Critical Deficiency	Noncritical Deficiency
Main drain	More than 10% drop in full flow pressure	13.2.5.2		X	
Alarm devices	Water motor and gong not functioning	13.2.6.1		X	
Alarm devices	Pressure switch or vane-type switch not functioning, no alarm	13.2.6.2		X	
Gauges	Not replaced or calibrated in 5 years, not accurate within 3% of scale	13.2.7.2, 13.2.7.3			X
Control valve	Valve not operating through its full range	13.3.3.1		X	
Control valve	No spring or torsion felt in rod when opening post indicator valve	13.3.3.2	X		
Supervisory switches	No signal from two revolutions of hand wheel from normal position or when stem has moved one-fifth of distance from normal position, signal restored in position other than normal	13.3.3.5.2		X	
Preaction valve	Priming water level not correct	13.4.3.2.1		X	
Preaction valve	Pressure reading at hydraulically most remote nozzle and/or at valve not comparable to original design values	13.4.4.2.2.2		X	
Preaction valve	Three-year leakage test failed	13.4.3.2.6		X	
Deluge valve	Annual full flow trip test revealed plugged nozzles, manual actuation devices did not operate properly	13.4.3.2.2.3	X		
Deluge valve	Pressure reading at hydraulically most remote nozzle and/or at valve not compatible with original design values	13.4.3.2.2.3		X	
Preaction valve	Low air pressure switch did not send signal, no alarm	13.4.3.2.12		X	
Preaction and deluge valve	Low temperature switch did not send signal, no alarm	13.4.3.2.13		X	
Preaction valve	Automatic air maintenance device did not pass test	13.4.3.2.14			X
Dry pipe valve	Priming water level not correct	13.4.4.2.1		X	
Dry pipe valve	Test results not comparable with previous results	13.4.4.2.2		X	
Quick-opening device	Quick-opening device did not pass test	13.4.4.2.4		X	
Dry pipe valve	Low air pressure switch did not send signal, no alarm	13.4.4.2.6		X	
Dry pipe valve	Low temperature switch did not send signal, no alarm	13.4.4.2.7		X	
Dry pipe valve	Automatic air maintenance device did not pass test	13.4.4.2.8		X	
Dry pipe system	Three-year leakage test failed	13.4.4.2.9		X	
Sprinkler pressure-reducing control valves	Test results not comparable to previous results	13.5.1.2		X	
Hose connection pressure-reducing valves	Test results not comparable to previous results	13.5.2.2		X	
Hose rack assembly pressure-reducing valve	Test results not comparable to previous results	13.5.3.2		X	
Hose valves (Class I and Class III standpipe system)	Annual test revealed valve leaking or difficult to operate	13.5.6.2.1.1		X	
Hose valves (Class II standpipe system)	Test revealed valve leaking or difficult to operate	13.5.6.2.2, 13.5.6.2.2.1		X	
Backflow prevention assemblies	Did not pass forward flow test	13.6.2.1	X		

The table does not take into account every variation of the conditions needing repair or correction. For example, a single lightly painted sprinkler in a large warehouse might be noncritical in its risk while a single painted sprinkler in a battery-charging station might be considered a critical deficiency or perhaps an impairment. In addition, the nature of the hazard or the life safety exposure of the occupancy should be considered when assigning a classification. The table should be used with good judgment and could require input from the authority having jurisdiction.

Statement of Problem and Substantiation for Public Input

Adds two items from 8.3.4 to Table A.3.3.7:

Diesel fuel annual test Failure to test diesel fuel for degradation 8.3.4 X (non-critical deficiency)
Diesel fuel annual test Diesel fuel tested for degradation and failed 8.3.4 X (impairment)

Submitter Information Verification

Submitter Full Name: Robert Upson
Organization: National Fire Sprinkler Association
Affilliation: NFSA Engineering and Standards Committee
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jun 30 13:31:30 EDT 2014

Public Input No. 273-NFPA 25-2014 [Section No. A.3.3.24]

A.3.3.24 Inspection, Testing, and Maintenance Service.
This program includes logging and retention of relevant records. Any portion or all of the inspection, testing and maintenance can be contracted with an inspection, testing and maintenance service.

Statement of Problem and Substantiation for Public Input

Clarification is needed to emphasize that the service provided can include any or all of the needed provisions of NFPA 25 similar to that provided in A.4.1.1.

Submitter Information Verification

Submitter Full Name: Tracey Bellamy
Organization: Telgian Corporation
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jul 07 15:45:16 EDT 2014

Public Input No. 38-NFPA 25-2014 [New Section after A.3.6.3]

TITLE OF NEW CONTENT

A.3.6.2.2 A small discharge of water is required to prevent the pump from overheating when operating under no flow (churn) conditions.

A.6.2.4 The net pressure includes the difference in velocity pressure from the pump discharge to the pump suction. In many cases the difference in suction and discharge velocity pressure is small and can be ignored without adversely affecting the evaluation of the pump performance.

A.3.6.2.5 The suction pressure includes the velocity pressure (i.e. gauge pressure plus velocity pressure).

A.6.2.6 The discharge pressure includes the velocity pressure (i.e. gauge pressure plus velocity pressure).

A.3.6.2.7 The peak power requirements occur at the peak load which typical occurs when the pump is operating between at 130-150% of rated flow. The required power may continue to increase beyond 150% of rated flow but NFPA 20 does not require testing beyond 150% of rated flow. The peak load can be determined by looking the horsepower curve on the fire pump curve supplied by the pump manufacturer.

Statement of Problem and Substantiation for Public Input

Additional explanatory for proposed definations

Submitter Information Verification

Submitter Full Name: Gayle Pennel
Organization: Aon Fire Protection Engineerin
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jan 02 13:49:00 EST 2014

Public Input No. 169-NFPA 25-2014 [Section No. A.3.6.4]

A.3.6.4 Sprinkler System.

~~A sprinkler system is considered to have a single system riser control valve. The design and installation of water supply facilities such as gravity tanks, fire pumps, reservoirs, or pressure tanks are covered by NFPA 20, *Standard for the Installation of Stationary Pumps for Fire Protection,* and NFPA 22, *Standard for Water Tanks for Private Fire Protection* .~~ As applied to the definition of a sprinkler system, each system riser serving a portion of a single floor of a facility or where individual floor control valves are used in a multistory building should be considered a seperate sprinkler system. Multiple sprinkler systems can be supplied by a common supply main. (13, 2013)

Statement of Problem and Substantiation for Public Input

The definition of a sprinkler system was extracted from NFPA 13, 2013 to NFPA 25, 2014 during the last cycle. (NFPA 13, 2013 section 3.3.22 to NFPA 25, 2014, section 3.6.4) . This P.I. seeks to extract the related annex note (A.3.3.22) from NFPA 13 to NFPA 25 as well.

When extracting a section from a standard, it is good practice to extract the related annex note as well in order that that explanatory information is included as well. This annex language clarifies that each system riser serving a portion of a single floor is considered a separate system and where individual floor control valves are used in a multistory building - these systems are considered a separate systems as well. This is the intent of NFPA 13 and as it will impact the application of NFPA 25, it is important that this language be included this standard.

This P.I. will delete the existing annex note associated with the definition of a sprinkler system in section A.3.6.4 in NFPA 25. If the committee feels that the existing annex note contains important information it may be retained with a new section number..

Submitter Information Verification

Submitter Full Name: Roland Asp
Organization: National Fire Sprinkler Association
Affilliation: NFSA E&S Committee
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jul 01 11:24:28 EDT 2014

Public Input No. 218-NFPA 25-2014 [New Section after A.4.1.5]

A.4.1.5.1.1

The process of correcting or repairing an impairment should begin as soon as the impairment is discovered. If the necessary parts are on hand the correction or repair can be accomplished in a matter of a few hours. However, in many cases, it may take several days to order repair parts, have them shipped, and schedule manpower to make the repair.

Statement of Problem and Substantiation for Public Input

This P.I. clarifies the timeline for repairs to correct impairments.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 217-NFPA 25-2014 [New Section after 4.1.5.1]	

Submitter Information Verification

Submitter Full Name: Robert Upson
Organization: National Fire Sprinkler Association
Affilliation: NFSA Engineering and Standards Committee
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jul 03 12:07:30 EDT 2014

Public Input No. 137-NFPA 25-2014 [Section No. A.4.1.5]

A.4.1.5

~~Recalled products should be replaced or remedied. Remedies include entrance into a program for scheduled replacement. Such replacement or remedial product should be installed in accordance with the manufacturer's instructions and the appropriate NFPA installation standards. A recalled product is a product subject to a statute or administrative regulation specifically requiring the manufacturer, importer, distributor, wholesaler, or retailer of a product, or any combination of such entities, to recall the product, or a product voluntarily recalled by a combination of such entities.~~

Needed corrections and repairs should be classified as an impairment, critical deficiency, or noncritical deficiency according to the effect on the fire protection system and the nature of the hazard protected.

Impairments are the highest priority problem found during inspection, testing, and maintenance and should be corrected as soon as possible. The fire protection system cannot provide an adequate response to a fire, and implementation of impairment procedures outlined in Chapter 15 is required until the impairment is corrected.

Critical deficiencies need to be corrected in a timely fashion. The fire protection system is still capable of performing, but its performance can be impacted and the implementation of impairment procedures might not be needed. However, special consideration must be given to the hazard in the determination of the classification. A deficiency that is critical for one hazard might be an impairment in another.

Noncritical deficiencies do not affect the performance of the fire protection system but should be corrected in a reasonable time period so that the system can be properly inspected, tested, and maintained.

Assembly occupancies, health care facilities, prisons, high-rise buildings, other occupancies where the life safety exposure is significant, or facilities that cannot be evacuated in a timely manner require special consideration. As an example, a nonfunctioning waterflow alarm might be considered a critical deficiency in a storage warehouse but an impairment in a hospital.

High hazard occupancies where early response to a fire is critical also require special consideration. A small number of painted sprinklers could be considered an impairment for a system protecting a high hazard occupancy but might be considered a critical deficiency in a metal working shop.

Classifications of needed corrections and repairs are shown in Table A.3.3.7.

Statement of Problem and Substantiation for Public Input

If PI 136 is accepted, this portion of the annex note for 4.1.5 should be deleted and relocated in order to correlate with 5.2.1.4.1.2.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 136-NFPA 25-2014 [New Section after 5.2.1.4]	This PI is dependent on the acceptance of PI 136.
Public Input No. 138-NFPA 25-2014 [New Section after A.5.2.1.3]	

Submitter Information Verification

Submitter Full Name: Joe Scibetta
Organization: BuildingReports
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jun 10 20:20:04 EDT 2014

Public Input No. 286-NFPA 25-2014 [New Section after A.4.1.6]

A.4.1.6.2 The following should be performed in the analysis of existing systems:

(1) A team should be established and responsibilities assigned

(2) The Owner's Requirements should be documented in consultation with the owner. (See the forms for Owner's Project Requirements from NFPA)

Include form here

(3)*An analysis of the original basis for design should be documented based on available historical information. (See forms for Basis of Design (BOD) reports from NFPA 3)

Include form here

(4) Any design or installation drawings should be reviewed to gain familiarity with the individual systems and overall fire protection and life safety sequence for the facility.

(5) A sequence of operation matrix should be documented for the owner, based on an understanding of the system's current function.

(6) The original systems manuals and record drawings should be reviewed for completeness and quality of materials.

(7) Knowledge of the operation and maintenance of fire protection and life safety systems by on-site personnel should be assessed to determine if additional training is required.

(8) A report should be developed and forwarded to the owner for review.

Additional Proposed Changes

File Name	Description	Approved
25_Cecil_Bilbo_of_the_Academy_of_Fire_Sprinkler_Technology.docx	PI Submission	

Statement of Problem and Substantiation for Public Input

In December of 2013, the Fire Protection Research Foundation held a summit to present and discuss research about the performance of water-based fire protection systems. These recommendations are based on our interpretation of the discussions held during that meeting.

The second most often cited reason for system failure was inadequate design of a system. This usually happens because of changes to the building or occupancy. Current language does not require documentation and approval of the evaluation. We believe this should be required.

The guidance we are recommending comes from the five year development process for NFPA 3. That committee developed very broad processes for evaluating the adequacy of fire protection and life safety systems. There is no other guidance found in the NFPA codes and standards for the evaluations of these systems.

Submitter Information Verification

Submitter Full Name: Cecil Bilbo
Organization: Academy of Fire Sprinkler Tech
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jul 10 13:45:40 EDT 2014

Public Input No. 285-NFPA 25-2014 [Section No. A.4.1.6]

A.4.1.6

The inspections and tests specified in this standard do not address the adequacy of design criteria or the capability of the fire protection system to protect the building or its contents. It is assumed that the original system design and installation were appropriate for the occupancy and use of the building and were approved by all applicable authorities having jurisdiction. If no changes to the water supply or to the building or its use have transpired since it was originally occupied, no evaluation is required. If changes are contemplated, it is the owner's responsibility to arrange for ~~the~~ an engineered evaluation of the fire protection system(s). Where the inspections and tests specified in the standard have been contracted to a qualified inspection provider or contractor, it is not the role of the inspector or contractor to determine if any changes have been made or the subsequent evaluation of the fire protection system. The evaluation of any building changes should be conducted before any proposed change is incorporated and should utilize the appropriate installation standard and input from applicable authorities having jurisdiction.

Fire protection systems should not be removed from service when the building is not in use; however, where a system that has been out of service for a prolonged period (such as in the case of idle or vacant properties) is returned to service, it is recommended that a responsible and experienced contractor be retained to perform all inspections and tests.

Additional Proposed Changes

File Name	Description	Approved
25_Cecil_Bilbo_of_the_Academy_of_Fire_Sprinkler_Technology.docx	PI Submission	

Statement of Problem and Substantiation for Public Input

In December of 2013, the Fire Protection Research Foundation held a summit to present and discuss research about the performance of water-based fire protection systems. These recommendations are based on our interpretation of the discussions held during that meeting.

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Submitter Information Verification

Submitter Full Name: Cecil Bilbo
Organization: Academy of Fire Sprinkler Tech
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jul 10 13:43:08 EDT 2014

Public Input No. 208-NFPA 25-2014 [New Section after A.4.1.7]

TITLE OF NEW CONTENT

new A.4.1.2 Less frequent tests are those performed on a frequency longer than annually. Typical less frequent tests include the dry valve full flow trip test (3 yr), dry and preaction system air integrity test (3 yr), standpipe flow test (5 yr), underground flow test (5yr), water tank interior inspection (3 or 5 yr), internal valve inspection (5 yr), internal pipe assessment (5 yr), sprinkler tests (5, 10, 20, and 50 yr), PRV test (5 yr), etc.

new A.4.1.2.1 The property owner or designated representative is required to keep records of inspection and test requirements performed in accordance with this standard, and should be able to show proof to the inspector that the less frequent tests have been performed. If the property owner or designated representative can't show proof through the records, the inspector should identify that the test(s) need to be performed.

new A.4.1.2.2 These less frequent tests often reveal problems with the system or unit being tested such as a slow trip time, inadequate flow and/or pressure, obstructing material in the system, sprinklers that won't operate properly, etc. Unacceptable conditions typically found during the less frequent test will have a material effect on the ability of the fire protection system or unit to function as intended in a fire event and should be classified as a critical deficiency.

Statement of Problem and Substantiation for Public Input

This annex text goes with the new requirement proposed to report less frequent tests not performed as a critical deficiency. The text explains what a less frequent test is with examples. The test also explains that the owner or owner's rep is required to have records indicating if the test has been done, and the reason for classifying a test not performed as a critical deficiency. If the new requirement is not accepted, then this annex text isn't needed.

Submitter Information Verification

Submitter Full Name: Terry Victor
Organization: Tyco/SimplexGrinnell
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jul 03 09:19:52 EDT 2014

Public Input No. 159-NFPA 25-2014 [New Section after A.4.3.1.1]

A.4.3.2

Documentation of inspection, testing, and maintenance should be in a consistent format that facilitates timely identification of deficiencies or impairments by both the owner, and by the AHJ if required. This section does not stipulate that any particular form be used, but does describe a required format that all documentation must follow.

Parts 1, 2, 6, and 7 should be similar across all the various types of forms (electronic or handwritten). Parts 3, 4, and 5 may vary based upon an individual contractor or owner's needs. These parts may resemble a "checklist" format, may be in narrative form, or may be something else altogether. All that is required by this section is that there is a description of the inspection, test, or maintenance performed and the results of those actions. AHJ's may require more detail such as verification that all inspections, tests, and maintenance required at that particular frequency were, in fact, completed.

A.4.3.2(1) Accurately describing the frequency on which the inspection, test, or maintenance is being conducted is important to the rest of the documentation process. The description of the work performed in parts 3, 4, and 5 will vary greatly based on what is documented here. For example, the quarterly frequency inspection items may not be extensive. On the other hand, an inspections being performed at the annual frequency should include all annual frequency items as well as the 365th daily, the 52nd weekly, the 4th quarterly and so on.

A.4.3.2(3), (4), and (5) Typically, records describing inspections, tests, and/or maintenance performed and the results of those inspections, tests, and/or maintenance are in a "checklist" form and formatted in such a manner that a "yes" answer indicates compliance with the standard and a "no" indicates a deficiency or impairment.

A.4.3.2(6) The purpose of this part of the report is to highlight deficiencies or impairments. Any deficiency or impairment found during the inspection or testing process should be described in part 6. Deficiencies or impairments noted in this section should include a reference to the section of NFPA 25 that is being violated.

Occasionally, a deficiency or impairment may be found that can be, and is corrected immediately. In this case, it is recommended that the deficiency or impairment be documented in part 6, and that the corrective action is also documented.

Statement of Problem and Substantiation for Public Input

A Public Input (P.I.-158) was made to the body of the standard to stipulate a required format of the documentation of Inspection, Testing and Maintenance activities. This proposed annex section will add explanatory language to the proposed section 4.3.2

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 158-NFPA 25-2014 [Section No. 4.3.2]	Related section

Submitter Information Verification

Submitter Full Name: Roland Asp
Organization: National Fire Sprinkler Association
Affilliation: NFSA E&S Committee
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jun 30 11:19:05 EDT 2014

Public Input No. 181-NFPA 25-2014 [New Section after A.4.3.3]

A.4.3.5.1

Fire protection system inspection, testing, and maintenance is commonly carried out on an annual cycle that is relatively effective at managing ITM requirements based on intervals of a year or less. However, due to sometimes unpredictable changes in building ownership, tenent changes, and changes in ITM contractors over time, it is comparitively easy to unintentionally delay or omit "long-interval" ITM items that are required on a multi-year cycle. The longer the required maintenance interval, the greater the importance of reviewing the available records concerning previous long-interval ITM items.

The scope of responsibility for internal ITM personnel or the scope of work for contracted ITM qualified professionals might not extend beyond annual ITM items. Even so, as part of the annual maintenance cycle, records of long-interval items should be reviewed. Any items that are due or overdue should be recorded as deficiencies until such time as the long-interval inspections, testing, or maintenance has been carried out and documented by qualified professionals.

Statement of Problem and Substantiation for Public Input

This proposal provides a clear means to handle long term ITM requirements that might otherwise go unnoticed and/or uncorrected due to changes in building owners or contractors.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 180-NFPA 25-2014 [New Section after 4.3.5]	Parent section in standard, main language of proposal

Submitter Information Verification

Submitter Full Name: Robert Upson
Organization: National Fire Sprinkler Association
Affilliation: NFSA Engineering and Standards Committee
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jul 02 12:42:46 EDT 2014

Public Input No. 183-NFPA 25-2014 [New Section after A.4.9.6]

A.5.1.1.2
see A.4.3.5.1

Statement of Problem and Substantiation for Public Input

Links to proposed documentary/deficiency requirement for long term ITM intervals.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 180-NFPA 25-2014 [New Section after 4.3.5]	

Submitter Information Verification

Submitter Full Name: Robert Upson
Organization: National Fire Sprinkler Association
Affilliation: NFSA Engineering and Standards Committee
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jul 02 12:56:25 EDT 2014

Public Input No. 212-NFPA 25-2014 [Section No. A.5.2.1.1.2(2)]

A.5.2.1.1.2(2)

Corrosion found on the seat, or built up on the deflector that could affect the spray pattern, or a buildup on the operating elements that could affect the operation can have a detrimental effect on the performance of the sprinkler. Light ~~surface corrosion on the boss, frame arms, and/or the deflector, and/or surface discoloration, not impacting the operation of the sprinkler should not warrant replacement. A degree of judgment should be exercised in the determination of the extent, location, and character of corrosion that would necessitate replacement~~ corrosion on other areas of a sprinkler could be permitted for continued use if samples are selected for testing based on worse-case conditions and the samples successfully pass the tests .

Statement of Problem and Substantiation for Public Input

Asking the inspector to use a degree of judgment to determine if corrosion on a sprinkler will affect the operation or performance of a sprinkler is unreasonable. The only reasonable way to make that determination is to send sprinklers for testing, and if the tests reveal that sprinklers are okay, they can stay in service.

Submitter Information Verification

Submitter Full Name: Terry Victor
Organization: Tyco/SimplexGrinnell
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jul 03 10:10:21 EDT 2014

Public Input No. 138-NFPA 25-2014 [New Section after A.5.2.1.3]

A.5.2.1.4.1.2 Remedies for recalled products include entrance into a program for scheduled replacement. Such replacement or remedial product should be installed in accordance with the manufacturer's instructions and the appropriate NFPA installation standards. A recalled product is a product subject to a statute or administrative regulation specifically requiring the manufacturer, importer, distributor, wholesaler, or retailer of a product, or any combination of such entities, to recall the product, or a product voluntarily recalled by a combination of such entities.

Statement of Problem and Substantiation for Public Input

If PI 136 is accepted, this excerpt from A.4.1.5 should be relocated to correlate with 5.2.1.4.1.2. The sentence "Recalled products should be replaced or remedied" has been deleted from the original excerpt in keeping with PI 136 that makes replacement of recalled sprinklers a requirement rather than a recommendation. Leaving that language in would be in conflict with the mandatory language of PI 136.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 136-NFPA 25-2014 [New Section after 5.2.1.4]	This PI is dependent on the acceptance of PI 136.
Public Input No. 137-NFPA 25-2014 [Section No. A.4.1.5]	Acceptance of PI 137 would allow for this PI to be applied.

Submitter Information Verification

Submitter Full Name: Joe Scibetta
Organization: BuildingReports
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jun 10 20:24:47 EDT 2014

Public Input No. 163-NFPA 25-2014 [Section No. A.5.3.1.1.2]

A.5.3.1.1.2

Examples of these environments are paper mills, packing houses, tanneries, alkali plants, organic fertilizer plants, foundries, forge shops, fumigation areas, pickle and vinegar works, stables, storage battery rooms, electroplating rooms, galvanizing rooms, steam rooms of all descriptions including moist vapor dry kilns, salt storage rooms, locomotive sheds or houses, driveways, areas exposed to outside weather, around bleaching equipment in flour mills,~~ all~~ and portions of ~~cold storage areas, and portions of~~ any area where corrosive vapors prevail. Harsh water environments include water supplies that are chemically reactive.

Statement of Problem and Substantiation for Public Input

This P.I. removes sprinklers installed in cold storage from examples of "harsh conditions" in order to change them to a10 year test interval based on past experience with cold storage.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 164-NFPA 25-2014 [New Section after 5.3.1.1.1.6]	

Submitter Information Verification

Submitter Full Name: Robert Upson
Organization: National Fire Sprinkler Association
Affilliation: NFSA Engineering and Standards Committee
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jun 30 13:56:05 EDT 2014

Public Input No. 210-NFPA 25-2014 [Section No. A.5.3.1.1.2]

A.5.3.1.1.2

Examples of these environments are paper mills, packing houses, tanneries, alkali plants, organic fertilizer plants, foundries, forge shops, fumigation areas, pickle and vinegar works, stables, storage battery rooms, electroplating rooms, galvanizing rooms, steam rooms of all descriptions including moist vapor dry kilns, salt storage rooms, locomotive sheds or houses, driveways, areas exposed to outside weather, around bleaching equipment in flour mills, ~~all portions of cold storage areas,~~ and portions of any area where corrosive vapors prevail. Harsh water environments include water supplies that are chemically reactive.

Additional Proposed Changes

File Name	Description	Approved
25_Victor_PI_xxx_-_Delete_Cold_Storage_from_list_of_Harsh_Environments.pdf	PI Form	

Statement of Problem and Substantiation for Public Input

Cold storage rooms are not typically a harsh environment and there's no need to test these sprinklers every five years. Sprinklers in them should be tested at their normal frequency. Upright sprinklers should be tested based on their type. Dry type sprinklers in these areas should be tested every ten years.

Submitter Information Verification

Submitter Full Name: Terry Victor
Organization: SimplexGrinnell
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jul 03 09:55:09 EDT 2014

Public Input No. 8-NFPA 25-2013 [Sections A.5.3.4.2.1, A.5.3.4.2.1(1), A.5.3.4.2.1(3)]

Sections A.5.3.4.2.1, A.5.3.4.2.1(1), A.5.3.4.2.1(3)

A.5.3.4.2.1

~~— All~~

It is assumed that all antifreeze systems installed after September 30, 2012

~~, are assumed to~~

will meet the minimum requirements of NFPA 13, 2013

~~edition. For systems installed after September 30, 2012, that do not meet the requirements of the 2013 edition of NFPA 13, consideration should be given to applying 5.3.4.2.1 .~~

~~A.5.3.4.2.1(1) —~~

~~The use of factory premixed solutions is required because solutions that are not mixed properly have a possibility of separating from the water, allowing the pure concentrate (which is heavier than water) to drop out of solution and collect in drops or low points of the system. Such concentrations are combustible and could present problems during fires. The properties of glycerine are shown in Table~~

Edition.

A.5.3.4.2.1(

~~1).Table A.5.~~

3

~~.4.2.1(1~~

)

~~Properties of Glycerine and~~

Propylene

~~Glycol Material Solution~~

~~(% by Volume) Specific~~

~~Gravity at 77°F~~

~~(25°C) Freezing Point °F °C Glycerine (C.P. or U.S.P.~~

~~grade) 0 1.000 32 0 5 1.014 31 -0.5 10 1.029 28 -2.2 15 1.043 25 -3.9 20 1.059 20 -6.7 25 1.071 16 -8.9 30 1.087 10 -12 35 1.100 4 -15.5 40 1.114 -2 -19 45 1.130 -11 -24 50 1.141 -19 -28 Propylene~~

glycol

~~0 1.000 32 0 5 1.004 26 -3 10 1.008 25 -4 15 1.012 22 -6 20 1.016 19 -7 25 1.020 15 -10 30 1.024 11 -12 35 1.028 2 -17 40 1.032 -6 -21~~

~~A.5.3.4.2.1(3) —~~

~~Antifreeze solutions with a maximum concentration of 38 percent glycerine or 30 percent propylene glycol do not require a deterministic hazard analysis. The risk assessment should be prepared by individual(s) who can demonstrate an ability to prepare a risk assessment by education and experience and who can demonstrate an understanding of the issues associated with antifreeze sprinkler systems, including the available related fire tests. For additional information regarding the risk assessment process, documentation to be submitted, and the AHJ's role, refer to NFPA 551, *Guide for the Evaluation of Fire Risk Assessments* , and the SFPE *Engineering Guide: Fire Risk Assessment* .~~

~~Propylene glycol and glycerine antifreeze~~

~~and glycerin antifreeze solutions discharged from sprinklers have the potential to ignite under certain conditions. – Research testing has indicated that several variables may influence the potential for large-scale ignition of the antifreeze solution discharged from a sprinkler. – These variables include, but are not limited to, the concentration of antifreeze solution, sprinkler discharge characteristics, inlet pressure at the sprinkler, ceiling height, and size of fire at the time of sprinkler discharge. All relevant data and information should be carefully reviewed and considered in the deterministic risk assessment.~~

~~As appropriate, the risk assessment should consider factors such as the following:~~

(1) ~~Occupancy use group per NFPA 13~~

(2) ~~Ceiling height~~

(3) ~~Antifreeze solution concentration and type~~

(4) ~~Maximum system pressure (normal static pressures)~~

(5) ~~Sprinkler type, including K-factor~~

(6) ~~Potential and actual fuel load (Christmas trees)~~

(7) ~~Type of structure (construction types)~~

(8) ~~Size of structure~~

(9) ~~Ability of the sprinkler system to control the fire~~

(10) ~~Occupied spaces versus unoccupied spaces such as trash enclosures and dust collectors as follows:~~

(11) ~~Adjacent occupancies (spaces adjacent to the area protected by antifreeze systems)~~

(12) ~~Separation between areas protected with an antifreeze system and other areas~~

(13) ~~Ventilation of areas protected with an antifreeze system to prevent damage to adjacent areas~~

(14) ~~Duration of antifreeze discharge~~

~~Tests summarized in Table A.5.3.4.2.1(3) show that large-scale ignition of the sprinkler spray did not occur in tests with 50 percent glycerine and 40 percent propylene glycol antifreeze solutions discharging onto a fire having a nominal heat release rate (HRR) of 1.4 MW. A deterministic risk assessment that demonstrates that the heat release rate for reasonably credible fire scenarios will be less than 1.4 MW at the time of sprinkler activation should be acceptable. The risk assessment should also address issues associated with management of change, such as change in occupancy and temporary fuel loads. A natural Christmas tree can result in an HRR well above 1.4 MW at the time of sprinkler activation.~~

~~-~~

~~In addition to the variables identified~~

~~previously~~

~~above , the deterministic risk assessment should include occupancy, quantity of solution, impact on life safety, and potential increase in heat release rate.~~

~~The following is a list of research reports that have been issued by the Fire Protection Research Foundation~~

~~(FPRF)~~

~~related to the use of antifreeze in sprinkler systems that should be considered in the development of the - deterministic risk assessment:~~

(1) ~~*Antifreeze Systems in Home Fire Sprinkler Systems*~~

~~—~~

(1) ~~— *Literature Review and Research Plan* - , Fire Protection Research Foundation, June 2010.~~

(2) ~~*Antifreeze Systems in Home Fire Sprinkler Systems*~~

~~—~~

(1) ~~— *Phase II Final Report* - , Fire Protection Research Foundation, December 2010.~~

(2) ~~*Antifreeze Solutions Supplied through Spray Sprinklers*~~

—

(1) — *Interim Report* - , Fire Protection Research Foundation, February 2012.

See the Uploaded Table A.5.3.4.2.1(3)

provides an overview of the testing conducted by the FPRF.

Table A.5.3.4.2.1(3) FPRF Testing Summary

Topic Information Scope of sprinklers tested The following sprinklers were used during the residential sprinkler research program described in the report dated December 2010: (1) Residential pendent style having nominal K-factors of 3.1, 4.9, and 7.4 gpm/psi $^{1/2}$ - (2) Residential concealed pendent style having a nominal K-factor of 4.9 gpm/psi $^{1/2}$ - (3) Residential sidewall style having nominal K-factors of 4.2 and 5.5 gpm/psi $^{1/2}$ - The following sprinklers were used during the spray sprinkler research program described in the report dated February 2012: (1) Residential pendent style having a nominal K-factor of 3.1 gpm/psi $^{1/2}$ - (2) Standard spray pendent style having nominal K-factors of 2.8, 4.2, 5.6, and 8.0 gpm/psi $^{1/2}$ - (3) Standard spray concealed pendent style having a nominal K-factor of 5.6 gpm/psi $^{1/2}$ - (4) Standard spray upright style having a nominal K-factor of 5.6 gpm/psi $^{1/2}$ - (5) Standard spray extended coverage pendent style having a nominal K-factor of 5.6 gpm/psi $^{1/2}$ - Antifreeze solution concentration <50% glycerine and <40% propylene glycol antifreeze solutions — solutions were not tested. 50% glycerine and 40% propylene glycol antifreeze solutions — large-scale ignition of the sprinkler spray did not occur in tests with sprinkler discharge onto a fire having a nominal heat release rate (HRR) of 1.4 MW. Large-scale ignition of the sprinkler spray occurred in multiple tests with sprinkler discharge onto a fire having a nominal HRR of 3.0 MW. 55% glycerine and 45% propylene glycol antifreeze solutions — large-scale ignition of the sprinkler spray occurred in tests with sprinkler discharge onto a fire having a nominal HRR of 1.4 MW. >55% glycerine and >45% propylene glycol antifreeze solutions — large-scale ignition of the sprinkler spray occurred in tests with sprinkler discharge onto a fire having an HRR of less than 500 kW. 70% glycerine and 60% propylene glycol antifreeze solutions — maximum antifreeze solution concentrations tested. Sprinkler inlet pressure Large-scale ignition of the sprinkler discharge spray was not observed when the sprinkler inlet pressure was 50 psi or less for tests using 50% glycerine or 40% propylene glycol. Ceiling height When discharging 50% glycerine and 40% propylene glycol antifreeze solutions onto fires having an HRR of 1.4 MW, no large-scale ignition of the sprinkler spray was observed with ceiling heights up to 20 ft. When discharging 50% glycerine and 40% propylene glycol antifreeze solutions onto fires having an HRR of 3.0 MW, large-scale ignition of the sprinkler spray was observed at a ceiling height of 20 ft. Fire control The test results described in the test reports of December 2010 and February 2012 indicated that discharging glycerine and propylene glycol antifreeze solutions onto a fire can temporarily increase the fire size until water is discharged. As a part of the residential sprinkler research described in report dated December 2010, tests were conducted to evaluate the effectiveness of residential sprinklers to control fires involving furniture and simulated furniture. The results of these tests indicated that 50% glycerine and 40% propylene glycol antifreeze solutions demonstrated the ability to control the furniture-type fires in a manner similar to water. For standard spray-type sprinklers, no tests were conducted to investigate the ability of these sprinklers to control the types and sizes of fires that these sprinklers are intended to protect.

in the Balloted TIA

Additional Proposed Changes

File Name	Description Approved
Proposed_TIA_1068_25_.docx	Balloted TIA

Statement of Problem and Substantiation for Public Input

NOTE: This public input originates from Tentative Interim Amendment 25-11-4 (TIA 1068) issued by the Standards Council on August 9, 2012 and per the NFPA Regs. needs to be reconsidered by the Technical Committee for the next edition of the Document.

The information provided in the Fire Protection Research Foundation report "Antifreeze Solutions Supplied through Spray Sprinklers: Interim Report" illustrates that under certain conditions (pressure, fire size, k-factor, ceiling height, deflector design…etc) a 50% glycerine solution is capable of igniting and causing a dramatic increase in heat release rate with a stronger ignition source. In addition, sprinklers with larger orifices that require lower pressure than typical residential sprinklers and potentially a larger droplet distribution also ignited. After apparently successfully using antifreeze solutions for years, several changes in codes, sprinkler system materials, and industry practices have converged, resulting in an identifiable problem with past usage of antifreeze in sprinkler systems. Once the issue of ignition of antifreeze solutions became an apparent problem, code changes and research to determine appropriate code changes were needed. This TIA applies the research conducted by The Fire Protection Research Foundation to NFPA 25, for the testing, inspection and maintenance of existing antifreeze systems.

This TIA requires the use of Listed Antifreeze Solutions for systems installed after September 30, 2012. Using listed antifreeze solutions will ensure that the solution discharged from a sprinkler system will not ignite or cause a dramatic increase in heat release rate of a fire. The process for developing listed products will also allow for a continued improvement in fire and life safety in environments meeting the NFPA Codes and Standards.

This TIA allows the continued acceptance of currently listed ESFR Antifreeze Systems. The listing process has already shown that, in some cases, it is possible to use current antifreeze solutions to provide the level of protection prescribed by NFPA 13. For this reason, it is proposed to allow the continued use of propylene-glycol solutions in systems and in protection scenarios that have been thoroughly tested to demonstrate such results. There are ESFR systems currently available that have been specifically tested and listed with a specific model of sprinkler and solution delivery method that provide an appropriate level of protection as to be considered "Early Suppression".

This TIA allows the continued use of propylene glycol up to 30% and glycerine up to 38%. Factory Mutual testing reported in FM Technical Report J.L.0003004619 K-25 Suppression Mode Sprinkler Protection for Areas Subject to Freezing has identified that a concentration up to 30% propylene glycol will not increase the heat release rate. Additionally, the MSDS sheets on propylene glycol identifies that a concentration of 30% does not have a flash point (as would be present with a combustible liquid). Prior testing of the residential sprinklers and antifreeze has shown that 50% glycerine has a similar response to fire as 40% propylene glycol. Based on the concentrations from the residential sprinkler tests, a concentration of 38% glycerine was considered to be equivalent to 30% propylene glycol.

This TIA allows the continued uses of propylene glycol between 30% and 40% and of glycerin between 38% and 50% for the following:
1) Dwelling units with residential or fast response sprinklers, and
2) Light hazard occupancies with quick response sprinklers and a ceiling no higher than 20 ft.
The fuel load for dwellings units does not create a large enough fire before the activation of quick response sprinklers in ceilings up to 20 ft to present a hazard for either residential sprinklers or spray sprinklers as depicted by the reports. The previous research program on residential sprinklers assigned an adequately conservative fire size of 1.4 MW that was based on a ceiling height of 19 ft. The latest report on spray sprinklers shows that with a 1.4 MW fire, there is no difference in outcome between a residential sprinkler and a spray sprinkler (see Figure 2 of Antifreeze Solutions Supplied through Spray Sprinklers – Interim Report). Thus, dwelling units do not present a significant risk when concentrations do not exceed 40% for propylene glycol and 50% for glycerine.

Light Hazard occupancies typically have a fuel load that has a lower rate of heat release than dwellings units but it is not unusual to encounter office settings with similar levels of furnishing. Thus, the higher rate of heat release was used for the evaluation. For ceilings up to 20 ft, the evaluation for dwelling units is applicable and the use of antifreeze at the currently allowed concentrations does not pose a hazard. In order to evaluate the potential risk when the ceilings are greater than 20 ft, DETACT was used to determine the fire size at the time of activation of the sprinkler system. The same variables as used in the Antifreeze Solutions in Home Fire Sprinkler Systems report were applied. Additionally, the report - Performance of Residential Sprinkler Systems with Sloped Ceilings and Beamed Ceilings determined that the same fire growth curve was appropriate for dwelling units. It was determined that a 3 MW fire occurs with a 33 ft ceiling It is not well understood how the antifreeze discharge will react at ceiling heights above 20 ft nor at what size fire significant involvement of the antifreeze discharge could occur at such ceiling heights. Thus, the ceiling height for light hazard occupancies is limited to a maximum of 20 ft.

In many cases, replacing existing antifreeze systems is a significant financial and /or operational burden for the owner. It is appropriate to provide time to plan and budget for the antifreeze systems identified above that have a minimal life safety and property loss risk. It is recognized that some existing antifreeze systems that are not readily grouped and identified above do not pose a risk, however, the variables affecting the hazard requires specific analysis. The results obtained from the Antifreeze Systems in Home Fire Sprinkler Systems report clearly indicated that a 1.4 MW fire does not present a threat for 40% propylene glycol and 50% glycerine. The results from the Antifreeze Solutions Supplied through Spray Sprinklers – Interim Report clearly show that a larger fire (3.0 MW) when combined with a 20 ft ceiling can create a problem. This presented the only two failures. However, significant increases in heat release rate were noted with a 3 MW fire and an 8-ft ceiling with smaller orifice sprinklers.

This TIA allows continued uses of propylene glycol between 30% and 40% and of glycerin between 38% and 50% for conditions not identified above, only when they are approved based upon a deterministic risk assessment.

Emergency Nature: The latest testing from The Fire Protection Research Foundation titled Antifreeze Solutions Supplied through Spray Sprinklers Interim Report (dated February 2012) shows that anti-freeze concentrations currently allowed in new NFPA 13 and 13R sprinkler systems, that are inspected, tested and maintained in accordance with NFPA 25, may support combustion and increase the size of the fire. This is a safety issue that requires changes in the standard.

Submitter Information Verification

Submitter Full Name: TC on INM-AAA
Organization: TC on Inspection, Testing, and Maintenance of Water-Based Systems
Street Address:
City:
State:
Zip:
Submittal Date: Wed Oct 30 09:55:23 EDT 2013

NFPA® 25-2011
Standard for the Inspection Testing and Maintenance of Water-Based Fire Protection Systems
TIA Log No.: 1068
Reference: 5.3.4.2, A.5.3.4.2, Table A.5.3.4.2, A.5.3.4.2.1, and A.5.3.4.2.1(3**)**
Comment Closing Date: July 2, 2012
Submitter: Roland Huggins, American Fire Sprinkler Association, Inc.

1. Delete 5.3.4.2 and subsections and add a new 5.3.4.2 and 5.3.4.2.1 as follows:

~~**5.3.4.2*** Antifreeze solutions shall comply with one of the following:~~
~~(1) The concentration of a glycerin solution measured in an existing system shall be limited to 50% by volume.~~
~~(2) Newly introduced solutions shall be factory premixed antifr**eeze solutions of glycerin (chemically pure or United States Pharmacopoeia 96.5%) at a maximum concentration of** 48% by volume.~~
~~(3) The concentration of a propylene glycol solution measured in an existing system shall be limited to 40% by volume.~~
~~(4) Newly introduced solutions shall be factory premixed antifreeze solutions of propylene glycol (chemically pure or United States Pharmacopoeia 96.5%) at a maximum concentration of 38% by volume.~~
~~(5) Other solutions listed specifically for use in fire protection systems.~~

5.3.4.2 Except as permitted by 5.3.4.2.1 and 5.3.4.2.2, all antifreeze systems shall utilize listed antifreeze solutions.

5.3.4.2.1* For systems installed prior to September 30, 2012, listed antifreeze solutions shall not be required until September 30, 2022 where all of the following conditions are met:

(1)* The concentration of the antifreeze solution shall be limited to 50% glycerin by volume or 40% propylene glycol by volume.

(2) Newly introduced solutions shall be factory premixed antifreeze solutions (chemically pure or United States Pharmacopoeia 96.5%).

(3)*Antifreeze systems with concentrations in excess of 30% propylene glycol and 38% glycerine shall be permitted based upon an approved deterministic risk assessment.

5.3.4.2.2 Premixed antifreeze solutions of propylene glycol exceeding 30% concentration by volume shall be permitted for use with ESFR sprinklers where the ESFR sprinklers are listed for such use in a specific application.

2. Renumber A.5.3.4.2 and Table A.5.3.4.2 as A.5.3.4.2.1(1) and Table A.5.3.4.2.1(1).

3. Add new annex section to read as follows:

A.5.3.4.2.1 It is assumed that all antifreeze systems installed after September 30, 2012 will meet the minimum requirements of NFPA 13, 2013 Edition.

A.5.3.4.2.1(3) Propylene glycol and glycerin antifreeze solutions discharged from sprinklers have the potential to ignite under certain conditions. Research testing has indicated that several variables may influence the potential for large-scale ignition of the antifreeze solution discharged from a sprinkler. These variables include, but are not limited to, the concentration of antifreeze solution, sprinkler discharge characteristics, inlet pressure at the sprinkler, ceiling height, and size of fire at the time of sprinkler discharge. All relevant data and information should be carefully reviewed and considered in the deterministic risk assessment.

In addition to the variables identified above, the deterministic risk assessment should include occupancy, quantity of solution, impact on life safety, and potential increase in heat release rate.

The following is a list of research reports that have been issued by the Fire Protection Research Foundation related to the use of antifreeze in sprinkler systems that should be considered in the development of the deterministic risk assessment:

1. *Antifreeze Systems in Home Fire Sprinkler Systems – Literature Review and Research Plan*, Fire Protection Research Foundation, June 2010.
2. *Antifreeze Systems in Home Fire Sprinkler Systems – Phase II Final Report*, Fire Protection Research Foundation, December 2010.
3. *Antifreeze Solutions Supplied through Spray Sprinklers – Interim Report*, Fire Protection Research Foundation, February 2012.

The following tables provide an overview of the testing

Topic	Information
Scope of Sprinklers Tested	The following sprinklers were used during the residential sprinkler research program described in the report dated December 2010: • Residential pendent style having nominal K-factors of 3.1, 4.9 and 7.4 gpm/psi$^{1/2}$ • Residential concealed pendent style having a nominal K-factor of 4.9 gpm/psi$^{1/2}$ • Residential sidewall style having nominal K-factors of 4.2 and 5.5 gpm/psi$^{1/2}$ The following sprinklers were used during the spray sprinkler research program described in the report dated February 2012: • Residential pendent style having a nominal K-factor of 3.1 gpm/psi$^{1/2}$ • Standard spray pendent style having nominal K-factors of 2.8, 4.2, 5.6 and 8.0 gpm/psi$^{1/2}$ • Standard spray concealed pendent style having a nominal K-factor of 5.6 gpm/psi$^{1/2}$ • Standard spray upright style having a nominal K-factor of 5.6 gpm/psi$^{1/2}$ • Standard spray extended coverage pendent style having a nominal K-factor of 5.6 gpm/psi$^{1/2}$
Antifreeze Solution Concentration	**<50% Glycerine and <40% Propylene Glycol Antifreeze Solutions**—Solutions were not tested. **50% Glycerine and 40% Propylene Glycol Antifreeze Solutions**—Large scale ignition of the sprinkler spray did not occur in tests with sprinkler discharge onto a fire having a nominal Heat Release Rate (HRR) of 1.4 MW. Large scale ignition of the sprinkler spray occurred in multiple tests with sprinkler discharge onto a fire having a nominal HRR of 3.0 MW. **55% Glycerine and 45% Propylene Glycol Antifreeze Solutions** – Large scale ignition of the sprinkler spray occurred in tests with sprinkler discharge onto a fire having a nominal HRR of 1.4 MW. **>55% Glycerine and >45% Propylene Glycol Antifreeze Solutions --** Large scale ignition of the sprinkler spray occurred in tests with sprinkler discharge onto a fire having a HRR of less than 500 kW. **70% Glycerine and 60% Propylene Glycol Antifreeze Solutions –** Maximum antifreeze solution concentrations tested.
Sprinkler Inlet Pressure	Large scale ignition of the sprinkler discharge spray was not observed when the sprinkler inlet pressure was 50 psi or less for tests using 50% glycerine or 40% propylene glycol.
Ceiling Height	When discharging 50% glycerine and 40% propylene glycol antifreeze solutions onto fires having a HRR of 1.4 MW, no large scale ignition of the sprinkler spray was observed with ceiling heights up to 20 ft. When discharging 50% glycerine and 40% propylene glycol antifreeze solutions onto fires having a HRR of 3.0 MW, large scale ignition of the sprinkler spray was observed at a ceiling height of 20 ft.
Fire Control	The test results described in the test reports December 2010 and February 2012 indicated that discharging glycerine and propylene glycol antifreeze solutions onto a fire can temporarily increase the fire size until water is discharged. As a part of the residential sprinkler research described in report dated December 2010, tests were conducted to evaluate the effectiveness of residential sprinklers to control fires involving furniture and simulated furniture. The results of these tests indicated that 50% glycerine and 40% propylene glycol antifreeze solutions demonstrated the ability to control the furniture type fires in a manner similar to water. For standard spray type sprinklers, no tests were conducted to investigate the ability of these sprinklers to control the types and sizes of fires that these sprinklers are intended to protect.

Submitter's Substantiation: The information provided in the Fire Protection Research Foundation report "Antifreeze Solutions Supplied through Spray Sprinklers: Interim Report" illustrates that under certain conditions (pressure, fire size, k-factor, ceiling height, deflector design…etc) a 50% glycerine solution is capable of igniting and causing a dramatic increase in heat release rate-with a stronger ignition source. In addition, sprinklers with larger orifices that require lower pressure than typical residential sprinklers and potentially a larger droplet distribution also ignited.
After apparently successfully using antifreeze solutions for years, several changes in codes, sprinkler system materials, and industry practices have converged, resulting in an identifiable problem with past usage of antifreeze in sprinkler systems. Once the issue of ignition of antifreeze solutions became an apparent problem, code changes and research to

determine appropriate code changes were needed. This TIA applies the research conducted by The Fire Protection Research Foundation to NFPA 25, for the testing, inspection and maintenance of existing antifreeze systems.

This TIA requires the use of Listed Antifreeze Solutions for systems installed after September 30, 2012. Using listed antifreeze solutions will ensure that the solution discharged from a sprinkler system will not ignite or cause a dramatic increase in heat release rate of a fire. The process for developing listed products will also allow for a continued improvement in fire and life safety in environments meeting the NFPA Codes and Standards.

This TIA allows the continued acceptance of currently listed ESFR Antifreeze Systems. The listing process has already shown that, in some cases, it is possible to use current antifreeze solutions to provide the level of protection prescribed by NFPA 13. For this reason, it is proposed to allow the continued use of propylene-glycol solutions in systems and in protection scenarios that have been thoroughly tested to demonstrate such results. There are ESFR systems currently available that have been specifically tested and listed with a specific model of sprinkler and solution delivery method that provide an appropriate level of protection as to be considered "Early Suppression".

This TIA allows the continued use of propylene glycol up to 30% and glycerine up to 38%. Factory Mutual testing reported in *FM Technical Report J.L.0003004619 K-25 Suppression Mode Sprinkler Protection for Areas Subject to Freezing* has identified that a concentration up to 30% propylene glycol will not increase the heat release rate. Additionally, the MSDS sheets on propylene glycol identifies that a concentration of 30% does not have a flash point (as would be present with a combustible liquid). Prior testing of the residential sprinklers and antifreeze has shown that 50% glycerine has a similar response to fire as 40% propylene glycol. Based on the concentrations from the residential sprinkler tests, a concentration of 38% glycerine was considered to be equivalent to 30% propylene glycol.

This TIA allows the continued uses of propylene glycol between 30% and 40% and of glycerin between 38% and 50% for the following:

1) Dwelling units with residential or fast response sprinklers, and

2) Light hazard occupancies with quick response sprinklers and a ceiling no higher than 20 ft.

The fuel load for dwellings units does not create a large enough fire before the activation of quick response sprinklers in ceilings up to 20 ft to present a hazard for either residential sprinklers or spray sprinklers as depicted by the reports. The previous research program on residential sprinklers assigned an adequately conservative fire size of 1.4 MW that was based on a ceiling height of 19 ft. The latest report on spray sprinklers shows that with a 1.4 MW fire, there is no difference in outcome between a residential sprinkler and a spray sprinkler (see Figure 2 of Antifreeze Solutions Supplied through Spray Sprinklers – Interim Report). Thus, dwelling units do not present a significant risk when concentrations do not exceed 40% for propylene glycol and 50% for glycerine.

Light Hazard occupancies typically have a fuel load that has a lower rate of heat release than dwellings units but it is not unusual to encounter office settings with similar levels of furnishing. Thus, the higher rate of heat release was used for the evaluation. For ceilings up to 20 ft, the evaluation for dwelling units is applicable and the use of antifreeze at the currently allowed concentrations does not pose a hazard. In order to evaluate the potential risk when the ceilings are greater than 20 ft, DETACT was used to determine the fire size at the time of activation of the sprinkler system. The same variables as used in the Antifreeze Solutions in Home Fire Sprinkler Systems report were applied. Additionally, the report - Performance of Residential Sprinkler Systems with Sloped Ceilings and Beamed Ceilings determined that the same fire growth curve was appropriate for dwelling units. It was determined that a 3 MW fire occurs with a 33 ft ceiling It is not well understood how the antifreeze discharge will react at ceiling heights above 20 ft nor at what size fire significant involvement of the antifreeze discharge could occur at such ceiling heights. Thus, the ceiling height for light hazard occupancies is limited to a maximum of 20 ft.

In many cases, replacing existing antifreeze systems is a significant financial and /or operational burden for the owner. It is appropriate to provide time to plan and budget for the antifreeze systems identified above that have a minimal life safety and property loss risk. It is recognized that some existing antifreeze systems that are not readily grouped and identified above do not pose a risk, however, the variables affecting the hazard requires specific analysis. The results obtained from the Antifreeze Systems in Home Fire Sprinkler Systems report clearly indicated that a 1.4 MW fire does not present a threat for 40% propylene glycol and 50% glycerine. The results from the Antifreeze Solutions Supplied through Spray Sprinklers – Interim Report clearly show that a larger fire (3.0 MW) when combined with a 20 ft ceiling

can create a problem. This presented the only two failures. However, significant increases in heat release rate were noted with a 3 MW fire and an 8-ft ceiling with smaller orifice sprinklers.

This TIA allows continued uses of propylene glycol between 30% and 40% and of glycerin between 38% and 50% for conditions not identified above, only when they are approved based upon a deterministic risk assessment.

Emergency Nature: The latest testing from The Fire Protection Research Foundation titled *Antifreeze Solutions Supplied through Spray Sprinklers Interim Report* (dated February 2012) shows that anti-freeze concentrations currently allowed in new NFPA 13 and 13R sprinkler systems, that are inspected, tested and maintained in accordance with NFPA 25, may support combustion and increase the size of the fire. This is a safety issue that requires changes in the standard.

Public Input No. 194-NFPA 25-2014 [New Section after A.5.4.3]

A.6.1.1.2
see A.4.3.5.1

Statement of Problem and Substantiation for Public Input

Links to proposed documentary/deficiency requirement for long term ITM intervals.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 180-NFPA 25-2014 [New Section after 4.3.5]	

Submitter Information Verification

Submitter Full Name: Robert Upson
Organization: National Fire Sprinkler Association
Affilliation: NFSA Engineering and Standards Committee
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jul 02 16:10:57 EDT 2014

Public Input No. 195-NFPA 25-2014 [New Section after A.6.3.4]

A.7.1.1.2
see A.4.3.5.1

Statement of Problem and Substantiation for Public Input

Links to proposed documentary/deficiency requirement for long term ITM intervals.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 180-NFPA 25-2014 [New Section after 4.3.5]	

Submitter Information Verification

Submitter Full Name: Robert Upson
Organization: National Fire Sprinkler Association
Affilliation: NFSA Engineering and Standards Committee
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jul 02 16:12:48 EDT 2014

Public Input No. 196-NFPA 25-2014 [New Section after A.8.1]

A.8.1.1.2
see A.4.3.5.1

Statement of Problem and Substantiation for Public Input

Links to proposed documentary/deficiency requirement for long term ITM intervals.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 180-NFPA 25-2014 [New Section after 4.3.5]	

Submitter Information Verification

Submitter Full Name: Robert Upson
Organization: National Fire Sprinkler Association
Affilliation: NFSA Engineering and Standards Committee
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jul 02 16:14:27 EDT 2014

Public Input No. 237-NFPA 25-2014 [New Section after A.8.1]

A.8.1.6.3 If the water level in a water storage tank is 12 feet above the center line of the fire pump at the time of the test and the suction pressure gauge indicates -1 psi, then the suction pressure when the water levels drops to the center line of the pump will be -6 psi, which is unacceptable.

Statement of Problem and Substantiation for Public Input

This proposal provides an example of where an unacceptable suction pressure may occur during a fire pump test.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 236-NFPA 25-2014 [New Section after 8.1.6]	

Submitter Information Verification

Submitter Full Name: JAMES M FELD
Organization: University of California
Street Address:
City:
State:
Zip:
Submittal Date: Fri Jul 04 15:25:54 EDT 2014

Public Input No. 179-NFPA 25-2014 [Section No. A.8.3.1.1]

A.8.3.1.1

Fire pump systems ~~should~~ conforming to the 1999 and more recent editions of NFPA 20 should be designed so that the pressure relief valve has a minimum flow (to verify pressure relief valve is properly set and operating) at churn, and only allows a larger flow under abnormal conditions (i.e., engine overspeed or failure of a variable speed pressure limiting control). ~~The~~ In situations where the discharge from the relief valve is piped back to the pump suction, the fire pump imparts more energy into the water when recirculating the water through the pump than when the pump is operating at churn (no flow). Since the 1999 edition of NFPA 20 ~~requires a~~ , a circulation relief valve has been required downstream of the pressure relief valve whenever the pressure relief valve is piped back to the pump suction. Improperly installed and/or operating circulation relief valves can result in unacceptably high water temperature, especially when recirculating the water to the pump suction. High water temperatures can affect the operation of a diesel engine drive. Modern engines, due to EPA requirements, are more sensitive to cooling water temperatures. . For fire pump systems conforming to editions of NFPA 20 prior to 1999 that permitted recirculation of the discharge from relief valves to the suction side of the pump without a circulation relief valve, precautions need to be taken during the churn test of the pump. Suction and discharge pressure gage readings can be taken quickly while there is no flow into the fire protection system, then a small flow can be created by opening an inspector's test connection, alarm bypass or main drain downstream of the pump to prevent the pump from overheating during the rest of the duration of the test.

Statement of Problem and Substantiation for Public Input

This clarifies the intent of the referenced section in the body of the standard.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 178-NFPA 25-2014 [Sections 8.3.1.1, 8.3.1.2]	Main proposal and substantiation

Submitter Information Verification

Submitter Full Name: Robert Upson
Organization: National Fire Sprinkler Association
Affilliation: NFSA Engineering and Standards Committee
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jul 01 15:21:07 EDT 2014

Public Input No. 148-NFPA 25-2014 [Section No. A.8.3.1.2]

Delete A.8.3.1.2 —
~~For pressure relief valve operation, see 8.3.2.4 .~~

Statement of Problem and Substantiation for Public Input

Section 8.3.1.2 does not refer to pressure relief valves which is covered in Section 8.3.3.3. Therefore, there is no need for Annex material. Also, the reference to Section 8.3.2.4 is incorrect.

Submitter Information Verification

Submitter Full Name: JAMES M FELD
Organization: University of California
Street Address:
City:
State:
Zip:
Submittal Date: Fri Jun 27 10:15:22 EDT 2014

Public Input No. 235-NFPA 25-2014 [New Section after A.8.3.3.1.2]

TITLE OF NEW CONTENT

A.8.3.3.1.2.4 High-rise buildings designed to the requirements of the old UBC and the newer IBC require a secondary water supply which is connected to a fire pump. In order to properly test the suction supply to the pump both water supply sources must be used independent of each other. Such water storage tanks are not to be considered as break tanks.

Statement of Problem and Substantiation for Public Input

This is explanatory material to describe why such testing is necessary. Both sources may be needed in the event of a fire either before or after a seismic event.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 234-NFPA 25-2014 [Section No. 8.3.3.1.2]	

Submitter Information Verification

Submitter Full Name: JAMES M FELD
Organization: University of California
Street Address:
City:
State:
Zip:
Submittal Date: Fri Jul 04 14:35:54 EDT 2014

Public Input No. 131-NFPA 25-2014 [New Section after A.8.3.7.1]

A.8.3.7.2.1

Mathematical adjustment is typically completed using Affinity Law calculations based on original and current test speed differences at each test flow point. The owner should retain all acceptance test documentation including the original pump acceptance test at time of commissioning with the original manufacturers pump performance curves. If lost, original factory curves are almost always available from the manufacturer by contacting them with the pump serial number. Manufacturers typically keep this product pump data for perpetuity.

Statement of Problem and Substantiation for Public Input

previous committee comments

Submitter Information Verification

Submitter Full Name: DARRELL UNDERWOOD
Organization: K G Y LLC
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jun 05 18:00:53 EDT 2014

Public Input No. 132-NFPA 25-2014 [New Section after A.8.3.7.1]

A.8.3.7.2.3

There are rare cases where original fire pump performance data is not available due to lost data, pump/driver replacement, or pump modifications that change the discharge pressure. In such cases 8.3.7.3 (1) cannot realistically be completed. And a flow test should be conducted using previous flow data for comparison. The performance curve 8.3.5.3 (2) should still be documented.

Statement of Problem and Substantiation for Public Input

previous committee comments

Submitter Information Verification

Submitter Full Name: DARRELL UNDERWOOD
Organization: K G Y LLC
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jun 05 18:07:22 EDT 2014

Public Input No. 133-NFPA 25-2014 [New Section after A.8.3.7.3(1)]

A.8.3.7.3.1

Figure A.8.3.7.3.(1)(a) shows a pump test result plotted on linear graph paper adjusted to rated speed and compared to an original pump performance and the manufacturers test curve. Suction pressure and discharge pressure are also plotted which, when compared to previous results, can aid in determining if a degraded pump discharge is the result of a decreased water supply. Also note, adjusted results of this test closely overlapping which is a good indication that the internal parts of the pump are functioning well (i.e. the pump is performing at or above 95% of the original design specifications per the manufacturers performance curve).

Statement of Problem and Substantiation for Public Input

previous committee comments

Submitter Information Verification

Submitter Full Name: DARRELL UNDERWOOD
Organization: K G Y LLC
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jun 05 18:15:22 EDT 2014

Public Input No. 134-NFPA 25-2014 [New Section after A.8.3.7.3(1)]

A.8.3.7.3.2

Figure A.8.3.7.2.1(b) shows a pump test result plotted on linear graph paper not adjusted to rated speed and compared (plotted with) fire system demands. This is the true pump output that supplies fire systems and can help clearly show if the actual pump discharge can meet fire system demands. Suction pressure and discharge pressure are also plotted which, when compared to previous results, can aid in determining if a degraded pump discharge is the result of a decreased water supply.

Statement of Problem and Substantiation for Public Input

previous committee comments

Submitter Information Verification

Submitter Full Name: DARRELL UNDERWOOD
Organization: K G Y LLC
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jun 05 18:21:38 EDT 2014

Public Input No. 197-NFPA 25-2014 [New Section after A.9.1]

A.9.1.1.2
see A.4.3.5.1

Statement of Problem and Substantiation for Public Input

Links to proposed documentary/deficiency requirement for long term ITM intervals.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 180-NFPA 25-2014 [New Section after 4.3.5]	

Submitter Information Verification

Submitter Full Name: Robert Upson
Organization: National Fire Sprinkler Association
Affilliation: NFSA Engineering and Standards Committee
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jul 02 16:17:39 EDT 2014

Public Input No. 198-NFPA 25-2014 [New Section after A.10.1]

A.10.1.1.2
see A.4.3.5.1

Statement of Problem and Substantiation for Public Input

Links to proposed documentary/deficiency requirement for long term ITM intervals.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 180-NFPA 25-2014 [New Section after 4.3.5]	

Submitter Information Verification

Submitter Full Name: Robert Upson
Organization: National Fire Sprinkler Association
Affilliation: NFSA Engineering and Standards Committee
Street Address:
City:
State:
Zip:
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Public Input No. 199-NFPA 25-2014 [New Section after A.10.3.3.3.1]

A.11.1.1.2
see A.4.3.5.1

Statement of Problem and Substantiation for Public Input

Links to proposed documentary/deficiency requirement for long term ITM intervals.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 180-NFPA 25-2014 [New Section after 4.3.5]	

Submitter Information Verification

Submitter Full Name: Robert Upson
Organization: National Fire Sprinkler Association
Affilliation: NFSA Engineering and Standards Committee
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jul 02 16:20:42 EDT 2014

Public Input No. 200-NFPA 25-2014 [New Section after A.11.4.4.2]

A.12.1.2
see A.4.3.5.1

Statement of Problem and Substantiation for Public Input

Links to proposed documentary/deficiency requirement for long term ITM intervals.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 180-NFPA 25-2014 [New Section after 4.3.5]	

Submitter Information Verification

Submitter Full Name: Robert Upson
Organization: National Fire Sprinkler Association
Affilliation: NFSA Engineering and Standards Committee
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jul 02 16:22:48 EDT 2014

Public Input No. 201-NFPA 25-2014 [New Section after A.13.1]

A.13.1.1.2
see A.4.3.5.1

Statement of Problem and Substantiation for Public Input

Links to proposed documentary/deficiency requirement for long term ITM intervals.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 180-NFPA 25-2014 [New Section after 4.3.5]	

Submitter Information Verification

Submitter Full Name: Robert Upson
Organization: National Fire Sprinkler Association
Affilliation: NFSA Engineering and Standards Committee
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jul 02 16:25:11 EDT 2014

Public Input No. 98-NFPA 25-2014 [Section No. A.13.2.5]

A.13.2.5

Main drains are installed on system risers for one principal reason: to drain water from the overhead piping after the system is shut off. This allows the contractor or plant maintenance department to perform work on the system or to replace nozzles after a fire or other incident involving system operation.

Data collected from the suction gauges during a fire pump flow test that test the water supply would satisfy the requirements for a main drain test.

These drains also are used to determine whether there is a major reduction in waterflow to the system, such as could be caused by a major obstruction, a dropped gate, a valve that is almost fully closed, or a check valve clapper stuck to the valve seat.

A satisfactory main drain test (i.e., one that reflects the results of previous tests) does not necessarily indicate an unobstructed passage, nor does it prove that all valves in the upstream flow of water are fully opened. However, these tests provide a reasonable level of confidence that the water supply has not been compromised.

The main drain test is conducted in the following manner:

(1) Record the pressure indicated by the " supply water gauge. " This is the gauge on the *supply side* of the backflow preventer, check valve or alarm valve, where the water supply enters the building.

(2) Close the alarm control valve on alarm valves.

(3) Fully open the main drain valve.

(4) After the flow has stabilized, record the residual (flowing) pressure

~~indicated by the water supply gauge.~~

(1) on the "system pressure gauge." This is the gauge located opposite the main drain connection on the riser. (Refer to NFPA 13-2013, Fig. A.8.16.2.4 (b).)

(2) Close the main drain valve slowly.

Statement of Problem and Substantiation for Public Input

Proposed change clarifies proper gauges to be read when conducting a main drain test. Current gauge descriptions in A.13.2.5, Nos. (1) and (4), i.e., "supply water gauge" and "water supply gauge," respectively, are potentially confusing and allude to different gauge locations, without being specific as to where. Furthermore, potentially utilizing the gauge opposite the main drain connection (ref. NFPA 13-2013, Fig. A.8.16.2.4 (b)) to record the initial static pressure may lead to erroneously high readings due to locked in pressure surges or variable supply pressure head, which would cause difficulty in trending analysis.

On a related note, the Correlating or NFPA 13 Committee might consider whether the text of NFPA 13-2013, A.8.16.2.4 would better be associated with code Par. 8.17.3.1. Secondly, is there perhaps unnecessary confusion as to where gauges are required, e.g., for wet systems, one must consider both 7.1.1 and 8.17.3?

Submitter Information Verification

Submitter Full Name: VINCENT KUNKLER
Organization: N/A
Affilliation: N/A
Street Address:
City:
State:
Zip:
Submittal Date: Wed Apr 23 16:00:06 EDT 2014

Public Input No. 85-NFPA 25-2014 [Section No. A.13.4.4.2.2.3]

A.13.4.4.2.2.3

A partial flow trip test is conducted in the following manner:

(1) Fully open the main drain valve to clean any accumulated scale or foreign material from the supply water piping

(2) Close the control valve to the point where additional closure cannot provide flow through the entire area of the drain outlet

(3) Close the valve controlling flow to the device if a quick-opening device is installed

(4) Record the system air or nitrogen pressure and the supply water pressure

(5) Relieve system air or nitrogen pressure by opening the priming level test valve or inspector's test valve

(6) Note and record the air or nitrogen pressure and supply water pressure when the dry pipe valve trips

(7) Immediately close the system control valve and open the main drain valve to minimize the amount of water entering the system piping

(8) Trip test the quick-opening device, if installed, in accordance with the manufacturer's instructions

(9) Open all low point drains and close when water ceases to flow

(10) Reset the dry pipe valve and quick-opening device, if installed, in accordance with the manufacturer's instructions and return the system to service

CAUTION: A partial flow trip test does not provide a high enough rate of flow to latch the clappers of some model dry pipe valves in the open position. When resetting such valves, check that the latching equipment is operative.

Statement of Problem and Substantiation for Public Input

The current wording expects a single inspector to perform the test and thusly allows use of the riser placed valve for relieving air pressure, however when a team is inspecting it is a much more effective use of time to trip the valve via the remote inspector's test. It has no negative effect on the ability to discern the trip pressures but greatly reduces the time to trip on large capacity systems for companies who use by choice or by necessity multiple inspectors to test dry systems.

Submitter Information Verification

Submitter Full Name: MIKE MOREY
Organization: BMW CONSTRUCTORS
Street Address:
City:
State:
Zip:
Submittal Date: Thu Mar 20 13:46:36 EDT 2014

Public Input No. 112-NFPA 25-2014 [Section No. A.13.5.1.2]

~~A.13.5.1.2 —~~
~~The sectional drain valve should be opened to compare the results with the original installation or acceptance tests.~~

Additional Proposed Changes

File Name	Description	Approved
LGK_NFPA_25-2014_PI_A.13.5.1.2.pdf	PI Form	

Statement of Problem and Substantiation for Public Input

The subject matter of Section 13.5.1.2 is the full flow testing of sprinkler pressure reducing valves at 5-year intervals. This testing would involve discharging water approximating the system demand, to allow for measurement of the water flow rate and the reading of the pressure gauges. NFPA 13 requires that: “Means shall be provided downstream of all pressure reducing valves for flow tests at sprinkler system demand.” The use of the sectional drain valve may or may not be adequate to serves as this “means “ for testing, so this specific reference to it should be deleted from the text.

Submitter Information Verification

Submitter Full Name: Larry Keeping
Organization: Professional Loss Control
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jun 05 12:53:11 EDT 2014

Public Input No. 113-NFPA 25-2014 [Section No. A.13.5.4.1]

~~A.13.5.4.1 —~~
~~When the PRV is located in or immediately downstream of the fire pump discharge, the weekly inspection of the master PRV can be performed during the weekly fire pump operating test.~~

Additional Proposed Changes

File Name	Description	Approved
LGK_NFPA_25-2014_PI_A.13.5.4.1.pdf	PI Form	

Statement of Problem and Substantiation for Public Input

NFPA 20 in Sections 4.7.7.2 and 4.15.10 does not allow pressure reducing valves to be installed in a fire pump discharge, so NFPA 25 should not contain text such as this, which implies that it might be alright.

Submitter Information Verification

Submitter Full Name: Larry Keeping
Organization: Professional Loss Control
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jun 05 12:54:55 EDT 2014

Public Input No. 114-NFPA 25-2014 [Section No. A.13.5.4.3]

~~A.13.5.4.3 —~~
~~When the PRV is located in the fire pump discharge, the full flow test of the master PRV can be performed during the annual fire pump flow test.~~

Additional Proposed Changes

File Name	Description	Approved
LGK_NFPA_25-2014_PI_A.13.5.4.3.pdf	PI Form	

Statement of Problem and Substantiation for Public Input

NFPA 20 in Sections 4.7.7.2 and 4.15.10 does not allow pressure reducing valves to be installed in a fire pump discharge, so NFPA 25 should not contain text such as this, which implies that it might be alright.

Submitter Information Verification

Submitter Full Name: Larry Keeping
Organization: Professional Loss Control
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jun 05 12:56:09 EDT 2014

Public Input No. 184-NFPA 25-2014 [Section No. A.14.2.1]

A.14.2.1

see A.4.3.5.1

It is the intent of this requirement to provide a reasonable assurance that corrosion and obstruction issues within fire protection systems are identified. It is not the intent to require verification that every piece of pipe in the system is free from corrosion and obstructions. An assessment of the internal condition of piping can be accomplished by several methods that meet the intent of this section. These methods include the following:

(1) Opening a flushing connection at the end of one main, and removing the end fitting or piece of branch line or a sprinkler for the purpose of inspecting for the presence of foreign organic and inorganic material.

(2) In dry pipe systems and preaction systems, the branch line inspected should be the most remote one from the source of water that is not equipped with the inspector's test valve.

(3) When performing normal maintenance that involves draining down a system to modify a system such as for tenant fit out or building renovations, or when removing or replacing piping, this inspection can be performed as described and properly recorded at that time. The time interval would then start for the next assessment of that system at the frequency determined by 14.2.1.1 or 14.2.1.2 .

(4) If a sprinkler is removed to perform this inspection, 5.4.1.1 requires a new sprinkler matching the characteristics of the replaced sprinkler.

(5) Utilizing alternative examination methods such as the following:

(6) Using video inspection equipment that is inserted into the system at strategic points to observe the internal condition of pipes. This equipment provides a visual exam of the pipes using a camera and lighting system on the end of a push cable. Video inspection equipment can be inserted in alarm, dry, and preaction valves for a look into risers, feed mains, some cross mains, and some branch lines, depending on the system configuration. The push cable can also be inserted in a check valve when performing the five-year internal inspection required by 13.4.2.1 to view additional areas of a system, and in the fire department connection to perform the interior inspection required by 13.7.2 .

(7) Ultrasonic or similar technology that allows the pipe wall to be tested to determine the extent of any deterioration due to microbiologically influenced corrosion (MIC) or other forms of corrosion. This method would not typically be used for the internal inspection of piping required by this section because it might not detect the presence of solid material in the piping, such as wood, plastic, or other foreign obstructions, that are not a by-product of corrosion, because only small representative sections of pipe are examined.

(8) A laboratory analysis of water samples obtained from the fire protection system, combined with collecting and inspecting solid material from fire protection system water discharged from a main drain, and an inspector's test connection, can provide an indication of the presence of corrosion, MIC, and/or foreign materials. If a high level of MIC is identified, or if a significant amount of foreign materials is found, further investigation might be warranted to verify the extent of corrosion, MIC, or other obstructions in the system. The solid materials should be collected with an appropriately sized strainer. If inspection of the solid materials identifies excessive rust, black water color, or sulfur (rotten egg) odors, an obstruction investigation as described in Section 14.3 is warranted.

Statement of Problem and Substantiation for Public Input

Adds links to proposed documentary/deficiency requirement for long term ITM intervals.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 180-NFPA 25-2014 [New Section after 4.3.5]	

Submitter Information Verification

Submitter Full Name: Robert Upson
Organization: National Fire Sprinkler Association
Affilliation: NFSA Engineering and Standards Committee
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jul 02 12:58:46 EDT 2014

Public Input No. 222-NFPA 25-2014 [Section No. A.14.2.1]

~~A.14.2.1 —~~

~~It is the intent of this requirement to provide a reasonable assurance that corrosion and obstruction issues within fire protection systems are identified. It is not the intent to require verification that every piece of pipe in the system is free from corrosion and obstructions. An assessment of the internal condition of piping can be accomplished by several methods that meet the intent of this section. These methods include the following:~~

(1) ~~Opening a flushing connection at the end of one main, and removing the end fitting or piece of branch line or a sprinkler for the purpose of inspecting for the presence of foreign organic and inorganic material.~~

(2) ~~In dry pipe systems and preaction systems, the branch line inspected should be the most remote one from the source of water that is not equipped with the inspector's test valve.~~

(3) ~~When performing normal maintenance that involves draining down a system to modify a system such as for tenant fit out or building renovations, or when removing or replacing piping, this inspection can be performed as described and properly recorded at that time. The time interval would then start for the next assessment of that system at the frequency determined by 14.2.1.1 or 14.2.1.2 .~~

(4) ~~If a sprinkler is removed to perform this inspection, 5.4.1.1 requires a new sprinkler matching the characteristics of the replaced sprinkler.~~

(5) ~~Utilizing alternative examination methods such as the following:~~

(6) ~~Using video inspection equipment that is inserted into the system at strategic points to observe the internal condition of pipes. This equipment provides a visual exam of the pipes using a camera and lighting system on the end of a push cable. Video inspection equipment can be inserted in alarm, dry, and preaction valves for a look into risers, feed mains, some cross mains, and some branch lines. depending on the system configuration. The push cable can also be inserted in a check valve when performing the five-year internal inspection required by 13.4.2.1 to view additional areas of a system, and in the fire department connection to perform the interior inspection required by 13.7.2 .~~

(7) ~~Ultrasonic or similar technology that allows the pipe wall to be tested to determine the extent of any deterioration due to microbiologically influenced corrosion (MIC) or other forms of corrosion. This method would not typically be used for the internal inspection of piping required by this section because it might not detect the presence of solid material in the piping, such as wood, plastic, or other foreign obstructions, that are not a by-product of corrosion, because only small representative sections of pipe are examined.~~

(8) ~~A laboratory analysis of water samples obtained from the fire protection system, combined with collecting and inspecting solid material from fire protection system water discharged from a main drain, and an inspector's test connection, can provide an indication of the presence of corrosion, MIC, and/or foreign materials. If a high level of MIC is identified, or if a significant amount of foreign materials is found, further investigation might be warranted to verify the extent of corrosion, MIC, or other obstructions in the system. The solid materials should be collected with an appropriately sized strainer. If inspection of the solid materials identifies excessive rust, black water color, or sulfur (rotten egg) odors, an obstruction investigation as described in Section 14.3 is warranted.~~

See uploaded file

Additional Proposed Changes

File Name	Description	Approved
NFPA_25_PI_A14.2.1.docx	A.14.2.1 Proposed changes	

Statement of Problem and Substantiation for Public Input

Section 14.2.1 applies to all type of systems but the annex section only illustrates methods of performing internal investigations on fire sprinkler systems. This P.I. seeks to expand the annex section to include methods for internal inspections of all types of systems including sprinkler, foam, water mist and private fire mains.

Submitter Information Verification

Submitter Full Name: Roland Asp
Organization: National Fire Sprinkler Association
Affilliation: NFSA E&S Committee
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jul 03 13:58:49 EDT 2014

A.14.2.1 It is the intent of this requirement to provide a reasonable assurance that corrosion and obstruction issues within fire protection systems are identified. It is not the intent to require verification that every piece of pipe in the system is free from corrosion and obstructions. An assessment of the internal condition of piping can be accomplished by several methods that meet the intent of this section. These methods include the following:

A. Fire Sprinkler Systems, Foam Systems and Water Mist Systems

1. Opening a flushing connection at the end of one main, and removing the end fitting or piece of branch line or a sprinkler or nozzle for the purpose of inspecting for the presence of foreign organic and inorganic material.

    (a) In dry pipe systems and preaction systems, the branch line inspected should be the most remote one from the source of water that is not equipped with the inspector's test valve.

    (b) When performing normal maintenance that involves draining down a system to modify a system such as for tenant fit out or building renovations, or when removing or replacing piping, this inspection can be performed as described and properly recorded at that time. The time interval would then start for the next assessment of that system at the frequency determined by 14.2.1.1 or 14.2.1.2.

    (c) If a sprinkler is removed to perform this inspection, 5.4.1.1 requires a new sprinkler matching the characteristics of the replaced sprinkler.

2. Utilizing alternative examination methods such as the following:

    (a) Using video inspection equipment that is inserted into the system at strategic points to observe the internal condition of pipes. This equipment provides a visual exam of the pipes using a camera and lighting system on the end of a push cable. Video inspection equipment can be inserted in alarm, dry, and preaction valves for a look into risers, feed mains, some cross mains, and some branch lines, depending on the system configuration. The push cable can also be inserted in a check valve when performing the five-year internal inspection required by 13.4.2.1 to view additional areas of a system, and in the fire department connection to perform the interior inspection required by 13.7.2.

    (b) Ultrasonic or similar technology that allows the pipe wall to be tested to determine the extent of any deterioration due to microbiologically influenced corrosion (MIC) or other forms of corrosion. This method would not typically be used for the internal inspection of piping required by this section because it might not detect the presence of solid material in the piping, such as wood, plastic, or other foreign obstructions, that are not a by-product of corrosion, because only small representative sections of pipe are examined.

    (c) A laboratory analysis of water samples obtained from the fire protection system, combined with collecting and inspecting solid material from fire protection system water discharged from a main drain, and an inspector's test connection, can provide an indication of the presence of corrosion, MIC, and/or foreign materials. If a high level of MIC is identified, or if a significant amount of foreign materials is found, further investigation might be warranted to verify the extent of corrosion, MIC, or other obstructions in the system. The solid materials should be collected with an appropriately sized strainer. If inspection of the solid materials identifies

excessive rust, black water color, or sulfur (rotten egg) odors, an obstruction investigation as described in Section 14.3 is warranted.

B. Standpipe and Hose Systems

1. Opening a flushing connection or fitting at the end of one main, removing a remote hose connection fitting and removing the end fitting of horizontal branch line (if present) for the purpose of inspecting for the presence of foreign organic and inorganic material.

   (a) When performing normal maintenance that involves draining down a system to modify a system such as for tenant fit out or building renovations, or when removing or replacing piping, this inspection can be performed as described and properly recorded at that time. The time interval would then start for the next assessment of that system at the frequency determined by 14.2.1.1 or 14.2.1.2.

2. Utilizing alternative examination methods such as the following:

   (a) Using video inspection equipment that is inserted into the system at strategic points to observe the internal condition of pipes. This equipment provides a visual exam of the pipes using a camera and lighting system on the end of a push cable. Video inspection equipment can be inserted in valves for a look into risers, feed mains, some cross mains, and some branch lines, depending on the system configuration. The push cable can also be inserted in a check valve when performing the five-year internal inspection required by 13.4.2.1 to view additional areas of a system, and in the fire department connection to perform the interior inspection required by 13.7.2.

   (b) Ultrasonic or similar technology that allows the pipe wall to be tested to determine the extent of any deterioration due to microbiologically influenced corrosion (MIC) or other forms of corrosion. This method would not typically be used for the internal inspection of piping required by this section because it might not detect the presence of solid material in the piping, such as wood, plastic, or other foreign obstructions, that are not a by-product of corrosion, because only small representative sections of pipe are examined.

   (c) A laboratory analysis of water samples obtained from the fire protection system, combined with collecting and inspecting solid material from fire protection system water discharged from a main drain, and an inspector's test connection, can provide an indication of the presence of corrosion, MIC, and/or foreign materials. If a high level of MIC is identified, or if a significant amount of foreign materials is found, further investigation might be warranted to verify the extent of corrosion, MIC, or other obstructions in the system. The solid materials should be collected with an appropriately sized strainer. If inspection of the solid materials identifies excessive rust, black water color, or sulfur (rotten egg) odors, an obstruction investigation as described in Section 14.3 is warranted.

C. Private Fire Service Mains

1. Opening an accessible point on one main for the purpose of inspecting for the presence of foreign organic and inorganic material.

(a) When performing normal maintenance that involves draining down a system to modify a system such as for tenant fit out or building renovations, or when removing or replacing piping, this inspection can be performed as described and properly recorded at that time. The time interval would then start for the next assessment of that system at the frequency determined by 14.2.1.1 or 14.2.1.2.

2. Utilizing alternative examination methods such as the following:

   (a) Using video inspection equipment that is inserted into the system at strategic points to observe the internal condition of pipes. This equipment provides a visual exam of the pipes using a camera and lighting system on the end of a push cable. Video inspection equipment can be inserted in alarm, dry, and preaction valves for a look into the private main depending on the system configuration. The push cable can also be inserted in a check valve when performing the five-year internal inspection required by 13.4.2.1 to view additional areas of a system, and in the fire department connection to perform the interior inspection required by 13.7.2.

   (b) Ultrasonic or similar technology that allows the pipe wall to be tested to determine the extent of any deterioration due to microbiologically influenced corrosion (MIC) or other forms of corrosion. This method would not typically be used for the internal inspection of piping required by this section because it might not detect the presence of solid material in the piping, such as wood, plastic, or other foreign obstructions, that are not a by-product of corrosion, because only small representative sections of pipe are examined.

   (c) A laboratory analysis of water samples obtained from the fire protection system, combined with collecting and inspecting solid material from fire protection system water discharged from a main drain, and an inspector's test connection, can provide an indication of the presence of corrosion, MIC, and/or foreign materials. If a high level of MIC is identified, or if a significant amount of foreign materials is found, further investigation might be warranted to verify the extent of corrosion, MIC, or other obstructions in the system. The solid materials should be collected with an appropriately sized strainer. If inspection of the solid materials identifies excessive rust, black water color, or sulfur (rotten egg) odors, an obstruction investigation as described in Section 14.3 is warranted.

Public Input No. 165-NFPA 25-2014 [New Section after F.3]

Annex G System Status Tagging

See attached

Additional Proposed Changes

File Name	Description	Approved
System_Status_Tagging_Proposal_-_2017_1_.docx	System Status Tagging Proposal	

Statement of Problem and Substantiation for Public Input

This Public Input seeks to add a new annex section (Annex G) that would suggest a standardized format for System Status Tagging. As NFPA 25 does not currently contain recommendations on system tagging, individual jurisdictions have adopted their own tagging procedures and there is no consistency between jurisdictions. There are many different status tagging systems in use today around the country. Some jurisdictions are using two color tags while other are using three or four color tags. The proposed Annex G will suggest a standardized tagging procedure to promote a consistent method.

This proposed method would consist of a General ITM Tag (White Tag) and three types of color-coded system status tags, indicating the presence, or lack of deficiencies. A green "compliance" tag indicates a system found to be compliant with NFPA 25. A yellow "deficiency" tag would indicate a system found to have deficiencies as defined by section 3.3.7 of NFPA 25. A red "impairment" tag would indicate a system found to have impairments as defined by section 3.3.21 of NFPA 25.

Submitter Information Verification

Submitter Full Name: Roland Asp
Organization: National Fire Sprinkler Association
Affilliation: NFSA E&S Committee
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jul 01 09:21:01 EDT 2014

System Status Tagging Proposal

Annex G

G.1 Tagging Program. In order to promote the timely recognition of; 1) whether or not the inspections and tests required by this standard have been completed at their designated frequencies, and; 2) whether or not the system(s) inspected and/or tested were in compliance with this standard at the time of the inspections and tests, water-based fire protection systems should have am ITM tag and a color-coded, system status tag attached. All tags should be made of durable, weatherproof, colorfast materials.

G.1.1 ITM Tag. Whenever an inspection, test, or maintenance is performed, a white "ITM tag" should be securely attached to the main control valve of each system. If the main control valve is not accessible, such as with underground piping, the tag should be attached at a point as close as possible to the main control valve, but still visible and accessible, such as on a hydrant. The purpose of the ITM tag is to provide evidence that inspections, tests, and maintenance is being performed on the system(s) and at what frequency. ITM tags should contain the following information and other information required by the AHJ:

(1) Identification of the system covered by the tag, including location (i.e. address) of facility.
(2) The type and required frequency of the inspection or test preformed.
(3) The name, organization and contact information of who performed the inspections or tests. If the jurisdiction where the inspections or tests are performed requires a license or certification, that license or certification number should also be shown on the tag.
(4) The date that the inspections or tests were performed.
(5) An indication (Yes, No, or Unknown) of whether or not there is evidence of less frequent inspections and tests having been completed. These inspections and tests include but are not limited to internal assessment of piping condition, internal valve inspections, full-flow trip tests of dry pipe valves, standpipe tests, etc.

Each type of system addressed by this standard and present in the building or on the property should be tagged. In addition, individual sprinkler systems meeting the definition of sprinkler system in chapter 3 should also be tagged separately.

For example, if a facility has private fire service main, fire pump, dry system in a parking garage, and 4 sprinkler systems (one for each floor of a 4-story building), ITM tags and system status tags should be found at:

1. A visible and accessible point on the private fire service main, and;
2. On the main control valve for the fire pump, and;
3. On the main control valve for the dry system, and;
4. At each of the 4 control valves of the sprinkler system(s) in the building.

Consideration should be given to indicating on the tag whether the inspections or tests were performed on the entire system or were limited to certain areas. An example would be whether all sprinklers requiring inspection by the standard were actually inspected, or if certain area's were excluded (such as within living units of a condominium or within individual storage units).

Even with a tagging system, the record keeping requirements in section 4.3 are still necessary. Implementing a tagging system does not negate the need for these records. In some cases, information on the tags may cause a more thorough review of the records to better understand the condition of the system(s) or determine if the required frequencies are being followed. Tags are not meant to replace ITM records.

G.1.2 System Status Tags. In addition to the white ITM tag, a color-coded tag should be attached to each system indicating the presence, or lack of deficiencies or impairments.

G.1.2.1 Green Tag. If, following inspections and/or tests, the system is found to be compliant with this standard, a green "compliance" tag should be attached along with the white ITM tag. The green compliance tag should indicate the date the ITM was performed, who performed the ITM, and identify the system covered by the tag.

In cases where a complete inspection as required by the standard cannot be performed (such as with condominium properties and/or within individual storage units) consideration should be given for whether or not a green tag can be attached. The AHJ should be consulted in these cases. If the portions of the system that were inspected or tested are complaint with the standard, and the AHJ permits the attachment of a green compliance tag, that tag should indicate which portion of system is covered by the green compliance tag.

G.1.2.2 Yellow Tag. If, following inspections and/or tests, the system is found to have deficiencies as defined in section 3.3.7, a yellow "deficiency tag" should be attached along with the white ITM tag. The yellow deficiency tag should contain a description of the deficiency(s) found. The yellow deficiency tag should also indicate the date the ITM was performed, who performed the ITM, and identify the system covered by the tag.

G.1.2.3 Impairment Tag. If, following inspections and/or tests, the system is found to have impairments as defined in section 3.3.21, a red "impairment tag" should be attached along with the white ITM tag. The red impairment tag should contain a description of the impairment(s). The red impairment tag should indicate the date the ITM was performed, who performed the ITM, and identify the system covered by the tag.

When impairments are found, the owner or designated representative should be notified immediately and the impairment coordinator should implement the impairment plan as outlined in Chapter 15.

G.1.2.4 Multiple Tags. If a system is found to have deficiencies as defined in section 3.3.7, <u>and</u> impairments as defined in section 3.3.21, both a yellow deficiency and a red impairment tag should be attached along with the white ITM tag. A green tag is reserved for a system with no deficiencies or

impairments and therefore should not be attached with any other color tag(s) other than the white ITM tag.

G.1.3 Placement and Removal of Tags. Only qualified people should attach or remove ITM or system status tags. The tag(s) should be attached at the completion of the inspections or tests required by this standard, and following work performed to correct deficiencies or impairments.

When to remove tags or how long tags remain on a system should be considered by the AHJ when implementing a tagging system. For systems with deficiencies, one option would include allowing the qualified person to remove the yellow deficiency tag once the deficiencies were corrected, and the appropriate tests as required by this standard completed. Another option would be for the tag to remain in place, but with the qualified person indicating that deficiencies were corrected, when the corrections were made, and by whom, on the tag itself. In this case, the tag should remain on the system until the next inspection or test of that type was performed and no deficiencies were found.

For systems with impairments, it is important to consider the tags placed on the FDC. Once the condition causing the impairment is corrected, and the tests required by this standard are complete, the impairment tags on the FDC should be removed to prevent confusion by responding emergency personnel. Other requirements of chapter 15 should be followed for restoring a system to service. Whether to remove the red impairment tag from the system control valve should be given the same consideration as with the yellow deficiency tag.

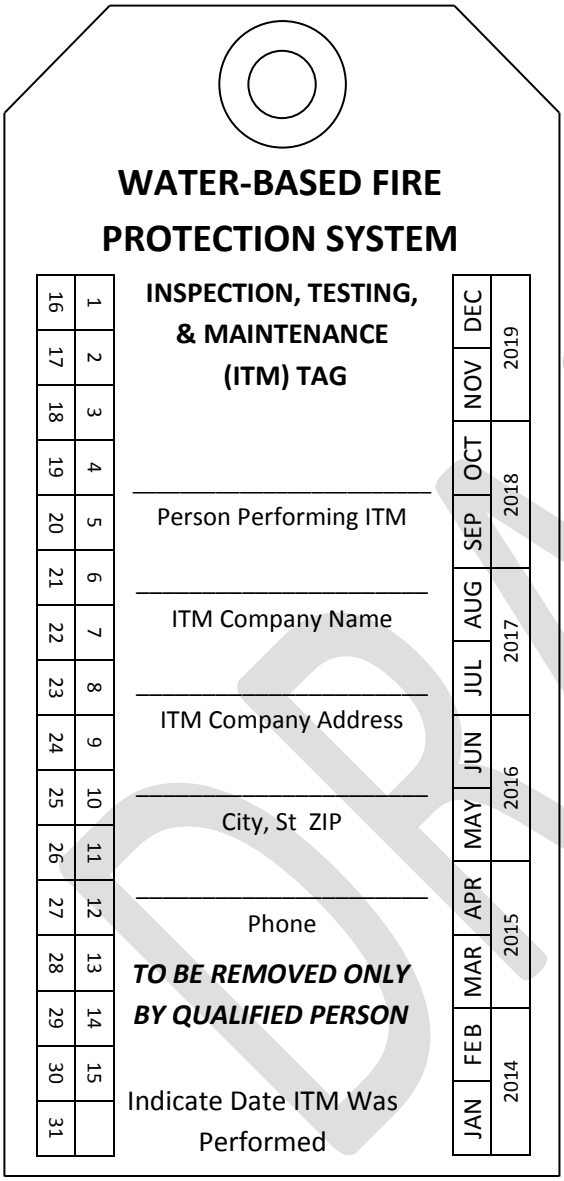
Regardless of which process is used for the removal of tags, it is critical that the record keeping requirements in chapter 4 are followed. These records provide the stakeholders with much-needed information about the history of the ITM on the system. Consideration should be given to maintaining any tags that are removed in the file for the effected system.

White ITM tags should remain on the system for long enough to establish whether or not the frequencies required by this standard are being followed. The record keeping requirements of chapter 4 provide good guidance.

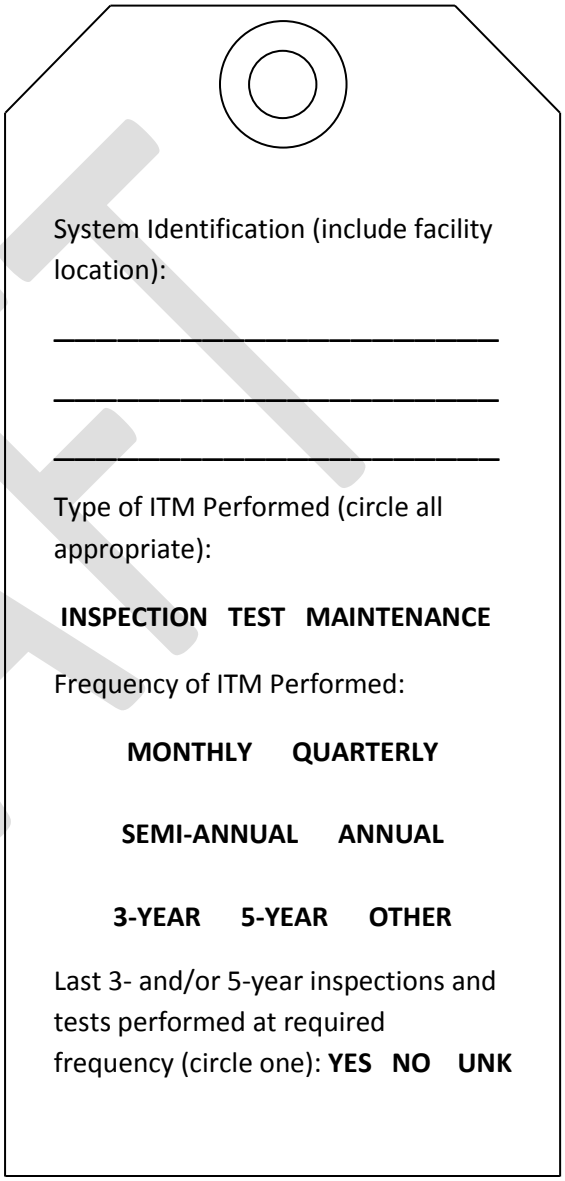
G.1.4 Sample Tags.

G.1.4.1 Sample ITM Tag (White Tag). On white background.

Front



Rear



G.1.4.2 Sample Compliance Tag (Green Tag). On green background.

Front

WATER-BASED FIRE PROTECTION SYSTEM

COMPLIANCE TAG

16	1
17	2
18	3
19	4
20	5
21	6
22	7
23	8
24	9
25	10
26	11
27	12
28	13
29	14
30	15
31	

_____
Person Performing ITM

_____
ITM Company Name

_____
ITM Company Address

_____
City, St ZIP

_____
Phone

TO BE REMOVED ONLY BY QUALIFIED PERSON

Indicate Date ITM Was Performed

JAN	2014
FEB	
MAR	2015
APR	
MAY	2016
JUN	
JUL	2017
AUG	
SEP	2018
OCT	
NOV	2019
DEC	

Rear

System Identification (include facility location):

_____

_____

_____

Does this tag cover the full or partial system (circle one)?

FULL **PARTIAL**

If partial is circled, indicate the area covered by this tag:

_____

_____

This tag indicates that the system on which it is affixed was found to be in compliance with NFPA 25 on the date of the inspection or test shown.

G.1.4.3 Sample Deficiency Tag (Yellow Tag). On yellow background.

Front

WATER-BASED FIRE PROTECTION SYSTEM

DEFICIENCY TAG

1	16
2	17
3	18
4	19
5	20
6	21
7	22
8	23
9	24
10	25
11	26
12	27
13	28
14	29
15	30
	31

_____
Person Performing ITM

_____
ITM Company Name

_____
ITM Company Address

_____
City, St ZIP

_____
Phone

TO BE REMOVED ONLY BY QUALIFIED PERSON

Indicate Date ITM Was Performed

DEC	2019
NOV	
OCT	2018
SEP	
AUG	2017
JUL	
JUN	2016
MAY	
APR	2015
MAR	
FEB	2014
JAN	

Rear

System Identification (include facility location):

_____

_____

_____

Describe Deficiency(s):

1. _____

Location:_____

2._____

Location:_____

3._____

Location:_____

4._____

Location:_____

G.1.4.4 Sample Impairment Tag (Red Tag). On red background.

Front

WATER-BASED FIRE PROTECTION SYSTEM

IMPAIRMENT TAG

1	16
2	17
3	
4	19
5	20
6	21
7	22
8	23
9	24
10	25
11	26
12	27
13	28
14	29
15	30
	31

_____
Person Performing ITM

_____
ITM Company Name

_____
ITM Company Address

_____
City, St ZIP

_____
Phone

TO BE REMOVED ONLY BY QUALIFIED PERSON

Indicate Date ITM Was Performed

JAN	2014
FEB	
MAR	2015
APR	
MAY	2016
JUN	
JUL	2017
AUG	
SEP	2018
OCT	
NOV	2019
DEC	

Rear

System Identification (include facility location):

_____

_____

_____

Describe Impairment(s):

1. _____

Location:_____

2._____

Location:_____

*The presence of this tag indicates a **DANGEROUS** situation requiring immediate corrective action.*

*Until the situation is corrected, the fire protection system is **OUT OF SERVICE**.*