National Fire Protection Association

1 Batterymarch Park, Quincy, MA 02169-7471
Phone: 617-770-3000 • Fax: 617-770-0700 • www.nfpa.org

M E M O R A N D U M

TO: NFPA Technical Committee on Fire Pumps

FROM: Elena Carroll, Administrator, Technical Projects

DATE: November 7, 2011

SUBJECT: NFPA 20 ROC **TC** Letter Ballot (A2012 Cycle)

The ROC letter ballot for NFPA 20 is attached. The ballot is for formally voting on whether or not you concur with the committee's actions on the comments. Reasons must accompany all negative and abstention ballots.

Please do not vote negatively because of editorial errors. However, please bring such errors to my attention for action.

Please complete and return your ballot as soon as possible but no later than **Monday, November 28, 2011.** As noted on the ballot form, please return the ballot to Elena Carroll either via e-mail to ecarroll@nfpa.org or via fax to 617-984-7110. You may also mail your ballot to the attention of Elena Carroll at NFPA, 1 Batterymarch Park, Quincy, MA 02169.

The return of ballots is required by the Regulations Governing Committee Projects.

Attachments: Comments
Letter Ballot

20-1 Log #44 Final Action: Reject
(1.5.1)

Submitter: Scott J. Harrison, Marioff Inc.
Comment on Proposal No: 20-3
Recommendation: Revise text to read as follows:
1.5.1 Technical documentation or proof of listing by a nationally recognized test laboratory shall be accepted by ~~submitted to~~ the authority having jurisdiction to demonstrate equivalency.
Substantiation: Water Mist systems along with their equipment have been approved and installed in a wide range of sprinkler applications globally.
They've been listed by national and internationally recognized testing laboratories such as: FM (Light Hazard, Computer Rooms, Subfloors, Special Hazard Machinery & spaces), City of New York (Light Hazard Occupancies, Combustion Turbines, Machinery Spaces), VdS Germany (Light Hazard, Ord Haz Grp I,II parking garages & III selected occupancies, Cable Tunnels), KfV Austria (Light Hazard, Ord Haz Grp I, Combustion Turbines and other agencies. These installations demonstrated equivalent fire protection to the authority having jurisdiction.
The addition of the wording will give the AHJ a clear option to accept technical documentation and/or the proof of listing of a nationally recognized test laboratory to demonstrate this equivalency.
Committee Meeting Action: Reject
Committee Statement: The language proposed is too restrictive and does not address the concerns of the committee raised in the ROP substantiation.

20-2 Log #112 Final Action: Reject
(2.3.4)

Submitter: Michael A. Anthony, University of Michigan / Rep. APPA.ORG - Leadership in Education/Association of Education Facility Executives
Comment on Proposal No: 20-1
Recommendation: Add the following:
2.3.4 IEEE Publications. Institute of Electrical and Electronics Engineers, Three Park Avenue, 17th Floor, New York, NY 10016-5997.
IEEE/ASTM SI10, *Standard for Use of the International System of Units (SI): The Modern Metric System*, 2002 2003.
IEEE Standard 493 - Recommended Practice for the Design of Reliable Industrial and Commercial Power Systems 2007
Substantiation: Reference to this document was adopted by another NEC technical committee for the 2011 revision. This is a reproduction of the ROC and should provide sufficient substantiation for inclusion in this document.
Note: Supporting material is available for review at NFPA Headquarters.
Committee Meeting Action: Reject
Committee Statement: The standard does not currently reference the IEEE 493 therefore listing in Chapter 2 is inappropriate.

20-3 Log #16 Final Action: Accept
(2.3.5 and C.1.2.5)

Submitter: Richard Schneider, Lancaster, SC
Comment on Proposal No: 20-6
Recommendation: Revise text to read as follows:
2.3.5 NEMA Publications.
NEMA MG-1 Motors and Generators ~~1998~~ 2010
C.1.2.5 NEMA Publications.
~~NEMA ICS 2.2, *Maintenance of Motor Controllers After a Fault Conditions*, 1983.~~
NEMA ICS 14, Application Guide for Electric Fire Pump Controllers ~~2001~~ 2010
NEMA ICS 15, *Instructions for the Handling, Installation, Operation, and Maintenance of Electric Fire Pump Controllers Rated Not More Than 600V, 2010*
NEMA 250, Enclosures for Electrical Equipment ~~1991~~ 2008
Substantiation: This documents the latest edition years as requested by the Panel. NEMA 2.2 is no longer active. Material has been included into NEMA ICS 15 which should be added.
Committee Meeting Action: Accept

20-4 Log #47 Final Action: Accept
(2.3.6)

Submitter: John F. Bender, Underwriters Laboratories Inc.
Comment on Proposal No: 20-1
Recommendation: Add text as follows:
2.3.6 UL Publications. Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, IL 60062-2096.
ANSI/UL 142, Standard for Steel Aboveground Tanks for Flammable and Combustible Liquids, 2006, revised 2010.
ANSI/UL 508, Standard for Industrial Control Equipment, 1999, revised 2010.
ANSI/UL 1449, Standard for Surge Protective Devices, 2006, Revised 2011.
Substantiation: Add reference to ANSI/UL 1449 as an added reference in 10.4.1.4 which was accepted by the TC action in ROP 20-107 (Log #CP12).
Committee Meeting Action: Accept

20-5 Log #29 Final Action: Accept
(3.3.23.4 Total Rated Head)

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.
Comment on Proposal No: 20-13
Recommendation: Revise text to read as follows:
3.3.23.4 Total Rated Head . The total head developed at rated capacity and rated speed for ~~either~~ a centrifugal ~~or a vertical shaft turbine-type~~ pump.
Substantiation: Vertical shaft turbine type pumps are also centrifugal pumps.
Committee Meeting Action: Accept

20-6 Log #71 Final Action: Reject
(3.3.23.4 Total Rated Head)

Submitter: Darrell W. Underwood, Underwood Fire Equipment, Inc.
Comment on Proposal No: 20-13
Recommendation: Revise text to read as follows:
3.3.23.4 Total Rated Head. The total head developed at rated capacity and rated speed for either a horizontal split-case or vertical shaft centrifugal pump.
Substantiation: A vertical shaft turbine pump is a centrifugal pump. By deleting the horizontal split-case description you imply that a vertical shaft turbine pump is not a centrifugal pump.
Also, by adding the centrifugal verbiage at the end of the definition it includes the end suction and inline type of pumps.
Committee Meeting Action: Reject
Committee Statement: The definition has been clarified in a previous comment, see 20-45 (Log #29).

20-7 Log #30 Final Action: Accept in Principle
(3.3.35 On-Site Standby Generator)

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.
Comment on Proposal No: 20-15
Recommendation: Revise the definition as follow:
3.3.35 On-Site Standby Generator. A facility producing electric power on site as the alternate supply of electrical power that does not produce electricity continuously.
Substantiation: A differentiation needs to be made between continuous alternative power supplies that are generated on-site such as solar power systems and generators that only start upon some other system failure.
This was agreed to at the April 2011 E&S Committee meeting.
Committee Meeting Action: Accept in Principle
Use definition from NFPA 70, section 695.2 and replace current definition section 3.3.35:
3.3.35 On-Site Standby Generator. A facility producing electric power on site as the alternate supply of electric power. It differs from an on-site power production facility, in that it is not constantly producing power.
Committee Statement: Use existing definition from NFPA 70 to maintain consistency between NFPA standards.

20-8 Log #56 Final Action: Reject
(3.3.35 On-Site Standby Generator and A.3.3.35)

Submitter: Marcelo M. Hirschler, GBH International
Comment on Proposal No: 20-15
Recommendation: Revise text to read as follows:
3.3.35 On-site standby generator. A facility producing electric power on site on a temporary basis as the alternate supply of electrical power.
A.3.3.35 It differs from an on-site power production facility in that it is not constantly producing power.
Substantiation: Definitions have to be in single sentences, in accordance with the NFPA Manual of Style. The negative comment by Ken Isman is very persuasive. There is no other definition of the same term (except in NFPA 70). A proposal will be made to recommend changes to NFPA 70.
I am the chair of the NFPA Glossary Committee on Terminology, trying to get definitions to be consistent with the Manual of Style and uniform within NFPA.
Committee Meeting Action: Reject
Committee Statement: Multiple sentences are regularly used in definitions and in this case the second sentence provides important information. A search of the manual of style did not find the one sentence requirement. The committee action on log 30 replaces the existing definition with the definition from NFPA 70.

20-9 Log #19 Final Action: Accept
(3.3.37.18 Water Mist Positive Displacement Pumping Unit and A.3.3.37.18 (New))

Submitter: John R. Kovacik, Underwriters Laboratories Inc.
Comment on Proposal No: n/a
Recommendation: Add the following new definition and associated Appendix material.

3.3.37.18 (New) Water Mist Positive Displacement Pumping Unit – Multiple positive displacement pumps designed to operate in parallel that discharges into a single common water mist distribution system.

A.3.3.37.18 (New) It is not the intent of this standard to apply this term to individual pumps used to supply water mist systems. This term is intended to apply to water mist systems designed with multiple pumps where a pump operates individually or multiple pumps operate in parallel based on the demand of the system downstream and the number of nozzles that discharge. These pumps work together as a single unit to provide the necessary flow and pressure of the water mist system.

Substantiation: This comment was prepared by the NFPA 20 Water Mist Task Group consisting of the following members; John Kovacik (Chair), Underwriters Laboratories; Gayle Pennel, Aon Risk Solutions; John Whitney, Clarke Fire Protection Products; Kerry Bell, Underwriters Laboratories; Hugh Castles, Entergy Services; Terry Victor, Tyco/SimplexGrinnell; Ken Isman, National Fire Sprinkler Association; Tim LaRose, Hughes Associates; Jennifer McGrath, Pentair Water; Wade Montague, Marioff; Zachary Magnone, Tyco/SimplexGrinnell; and Pasi Pennanen, Marioff.

Multiple proposals were submitted to introduce requirements specific to water mist systems. The Water Mist Task Group was charged with reviewing those proposals and drafting comments, if possible, which would modify the proposals in a manner that would be supported by the NFPA 20 Committee. Before drafting comments on the proposals the Water Mist Task Group concluded it was necessary to define a water mist system. The definition would serve as a focal point for developing the comments and the work of the task group would insure that the comments would correlate with the definition.

The proposed definition and Appendix material reflect the construction and application of commercially available water mist systems.

Committee Meeting Action: Accept

20-10 Log #51 Final Action: Accept in Principle
(3.3.40 Series Fire Pump Unit)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Comment on Proposal No: 20-19
Recommendation: Accept proposal 20-19 Log #139 with the following changes:

In the second sentence delete the first “Two” and change the word “though” to “through”.

3.3.40 Series Fire Pump Unit. All fire pump units located within the same building that operate in a series arrangement where the first fire pump takes suction directly from a water supply and each sequential pump takes suction under pump pressure from the preceding pump.~~, pumps taking suction from tanks or break tanks Two p~~Pumps that operate in series ~~though~~ through a tank(s) or break tank(s) are not considered part of a series fire pump unit~~s. even if fire pumps at lower elevations are used to refill the tanks or break tanks.~~

Substantiation: Several fire pumps may act in series as described through tanks or break tanks, and the text should not limit it to two pumps only. Changing “though” to “through” is editorial. This comment is being submitted by the Tyco Codes and Standards Sprinkler Task Group.

Committee Meeting Action: Accept in Principle
Revise annex A.3.3.40 to read as follows:

A.3.3.40 Pumps that fill tanks are not considered to be in series with the pumps supplied by those tanks. Water utilities and “campus type” water distribution systems that supply a fire pump within a building may have pumps that operate independently of, but are necessary to the operation of a fire pump within the building. These pumps are not included within the definition of series fire pump unit, but the arrangement of these pumps should be reviewed as part of evaluating the water supply.

Committee Statement: The committee agrees with the submitter, however wanted to clarify that pumps filling the tanks are not considered to be in series.

20-11 Log #57 Final Action: Reject

(3.3.40 Series Fire Pump Unit and A.3.3.40)

Submitter: Marcelo M. Hirschler, GBH International

Comment on Proposal No: 20-19

Recommendation: Revise text to read as follows:

3.3.40 Series Fire Pump Unit. All fire pump units located within the same building that operate in a series arrangement where the first fire pump takes suction directly from a water supply and each sequential pump takes suction under pump pressure from the preceding pump. ~~Two pumps that operate in series though a tank(s) or break tank(s) are not considered part of a series fire pump unit.~~

A.3.3.40 Two pumps that operate in series through a tank(s) or break tank(s) are not considered part of a series fire pump unit. Water utilities and "campus type" water distribution systems that supply a fire pump within a building may have pumps that operate independently of, but are necessary to the operation of a fire pump within the building. These pumps are not included within the definition of series fire pump unit, but the arrangement of these pumps should be reviewed as part of evaluating the water supply.

Substantiation: Definitions have to be in single sentences, in accordance with the NFPA Manual of Style.

The technical committee may also want to incorporate the sentence in question somewhere within the body of the standard.

I am the chair of the NFPA Glossary Committee on Terminology, trying to get definitions to be consistent with the Manual of Style and uniform within NFPA.

Committee Meeting Action: Reject

Committee Statement: Multiple sentences are regularly used in definitions and in this case the second sentence provides important information. A search of the manual of style did not find the one sentence requirement.

20-12 Log #21 Final Action: Accept
(4.5.1.1, 4.5.1.2, 4.5.1.3, 14.2.4.1.1, 14.2.4.2.1, and 14.2.4.2.2 (New))

Submitter: John R. Kovacik, Underwriters Laboratories Inc.
Comment on Proposal No: 20-25
Recommendation: Insert new Sections as follows:

4.5.1.1 For Water Mist Positive Displacement Pumping Units, certified shop test data including flow, pressure and horsepower shall be provided for each independent pump.

4.5.1.2 For Water Mist Positive Displacement Pumping Units, a certified shop test data including flow, pressure and horsepower shall also be provided for the fire pump unit with variable speed features deactivated. The certified fire pump unit shop test data shall be developed by activating the individual fire pumps in the same operating sequence that the controller will utilize.

4.5.1.3 For Water Mist Positive Displacement Pumping Units with variable speed features, a certified shop test data including flow, pressure and horsepower shall also be provided for the fire pump unit with variable speed features activated. The certified fire pump unit shop test data shall be developed by activating the individual fire pumps in the same operating sequence that the controller will utilize.

14.2.4.1.1 For Water Mist Positive Displacement Pumping Units, a copy of the manufacturer's certified shop test data for both variable speed and non-variable speed operation shall be available for comparison of the results of the field acceptance test.

14.2.4.2.1 For Water Mist Positive Displacement Pumping Units with variable speed features, the pump unit as installed shall equal the performance as indicated on the fire pump unit manufacturer's certified shop test data with variable speed features deactivated within the accuracy limits of the test equipment.

14.2.4.2.2 For Water Mist Positive Displacement Pumping Units, the pump unit as installed shall equal the performance as indicated on the fire pump unit manufacturer's certified shop test data with variable speed features activated within the accuracy limits of the test equipment.

Substantiation: This comment was prepared by the NFPA 20 Water Mist Task Group consisting of the following members; John Kovacik (Chair), Underwriters Laboratories; Gayle Pennel, Aon Risk Solutions; John Whitney, Clarke Fire Protection Products; Kerry Bell, Underwriters Laboratories; Hugh Castles, Entergy Services; Terry Victor, Tyco/SimplexGrinnell; Ken Isman, National Fire Sprinkler Association; Tim LaRose, Hughes Associates; Jennifer McGrath, Pentair Water; Wade Montague, Marioff; Zachary Magnone, T yco/SimplexGrinnell; and Pasi Pennanen, Marioff.

Multiple comments have been submitted which define Water Mist Positive Displacement Pumping Unit and provides the requirements for operation as a single pumping unit. This information is necessary to make certain the sections in the standard are properly correlated and that the Water Mist Positive Displacement Pumping Unit is not in conflict with requirements for centrifugal pumps.
Committee Meeting Action: Accept

20-13 Log #45 Final Action: Reject
(4.6.1.1)

Submitter: Scott J. Harrison, Marioff Inc.
Comment on Proposal No: 20-21
Recommendation: Add new text to read:

4.6.1.1 Water Supplies for Water Mist Systems shall meet the requirements of NFPA 750 Standard on Water Mist Fire Protection Systems, Chapter 10.

Substantiation: When water mist systems and their pumps are installed, special considerations must be addressed as noted in NFPA 750 such as duration (for the mist system) , sizing of pump suction supply, reserve supply, water quality, filter/strainer requirements, water additives, etc. Most of these and other requirements are not covered by NFPA 20. Adding this paragraph to Section 4.6 Liquid Supplies will insure adherence to those additional requirements for water mist systems by referring the user over to those key guidelines in NFPA 750, Chapter 10, thereby eliminating errors in design or installation.
Committee Meeting Action: Reject
Committee Statement: This is outside the scope of NFPA 20.

20-14 Log #18 Final Action: Accept
(4.7.5)

Submitter: John R. Kovacik, Underwriters Laboratories Inc.
Comment on Proposal No: 20-25
Recommendation: Revise text to read as follows:
4.7.5 Each driver or Water Mist Positive Displacement Pumping Unit shall have its own dedicated controller.
Substantiation: This comment was prepared by the NFPA 20 Water Mist Task Group consisting of the following members; John Kovacik (Chair), Underwriters Laboratories; Gayle Pennel, Aon Risk Solutions; John Whitney, Clarke Fire Protection Products; Kerry Bell, Underwriters Laboratories; Hugh Castles, Entergy Services; Terry Victor, Tyco/SimplexGrinnell; Ken Isman, National Fire Sprinkler Association; Tim LaRose, Hughes Associates; Jennifer McGrath, Pentair Water; Wade Montague, Marioff; Zachary Magnone, Tyco/SimplexGrinnell; and Pasi Pennanen, Marioff.
Multiple comments have been submitted which define Water Mist Positive Displacement Pumping Unit and provides the requirements for operation as a single pumping unit. With current microprocessor based control technologies and architecture, having a single controller with appropriate redundancy schemes can provide equivalent or superior reliability while providing the added benefit of a central control location. This central control location would allow for advanced system diagnostics and status and offer the option of remote monitoring advancing firefighting efforts and system availability.
Committee Meeting Action: Accept

20-15 Log #100 Final Action: Accept in Principle
(4.12.1.4)

Submitter: Tracey D. Bellamy, Telgian Corporation
Comment on Proposal No: 20-28
Recommendation: Reconsider the proposed new 4.12.1.4.
Substantiation: The provisions of 4.12.1.1.2 direct that indoor fire pump rooms in non-high rise buildings or in separate fire pump buildings be separated in accordance with the provisions of Table 4.12.1.1.2. This direction makes Table 4.12.1.1.2 applicable to both pump rooms inside the protected building and in separate pump house buildings. The second line entry in Table 4.12.1.1.2 provides an allowance for a condition that involves a non-sprinklered pump room in a building that is fully sprinklered. It appears from the final portion of the Committee statement that the intent of Table 4.12.1.1.2 might have been to only apply to separate pump house buildings; however, as directed by 4.12.1.1.2 the Table would be applicable to both situations. As a result the second line entry would be in conflict with NFPA 13, 8.1.1 requiring corrective action.
Committee Meeting Action: Accept in Principle
Add asterisk to 4.12.1.1.2 to show new annex material:
4.12.1.1.2*
Add new annex A.4.12.1.1.2 to read as follows:
A.4.12.1.1.2 The purpose for the “Not Sprinkered” column in Table 4.12.1.1.2 is to provide guidance for unsprinklered buildings. This does not permit sprinklers to be omitted from pump rooms in fully sprinklered buildings.
Do not accept proposal 20-28.
Committee Statement: Guidance is still required for pump rooms in nonsprinklered buildings. The annex material clarifies these requirements.

20-16 Log #109 Final Action: Reject
(4.12.5)

Submitter: Michael A. Anthony, University of Michigan / Rep. APPA.ORG - Leadership in Education/Association of Education Facility Executives
Comment on Proposal No: 20-94
Recommendation: Revise text to read as follows:
4.12.5 Emergency Lighting.
4.12.5.1 Emergency lighting shall be provided in accordance with NFPA 101 Life Safety Code and NFPA 110 Standard for Emergency and Standby Power Systems
Substantiation: Emergency lighting as described in the Life Safety Code deals with lighting for getting OUT of a fire pump room (i.e. egress). In fire pump rooms, however, you want fire-fighting personnel going INTO the room. There appears to be no bright line statement in any NFPA document at the moment which requires that fire pump rooms to have ingress lighting. Chapter 7 articles in the NEC only deal with wiring methods for various types of illumination systems fire fighters would need.
The best language we have for getting ingress illumination appears in Section 7.3 of NFPA 110. For the convenience of the committee, a portion of the relevant passage is shown below:
7.3.1 The Level 1 or Level 2 EPS equipment location(s) shall be provided with battery-powered emergency lighting. This requirement shall not apply to units located outdoors in enclosures that do not include walk-in access.
7.3.2 The emergency lighting charging system and the normal service room lighting shall be supplied from the load side of the transfer switch.
Level 1 systems are installed where failure of the equipment to perform could result in loss of human life or serious injuries. Level 2 systems are installed where failure of the EPSS to perform is less critical to human life and safety.
It is recognized that this comment will be held over until the next revision cycle because it presents the committee a new concept. We would like to see this concept tracking in the discussion at any point.
Committee Meeting Action: Reject
Committee Statement: NFPA 110 Scope does not cover emergency lighting.

20-17 Log #99 Final Action: Accept in Principle
(4.12.5.2)

Submitter: Tracey D. Bellamy, Telgian Corporation
Comment on Proposal No: 20-33
Recommendation: Revise text to read as follows:
4.14.5.2 No control valve other than a listed OS&Y valve shall be installed in the suction pipe within 50 ft (15.3 m) of the pump suction flange.
Substantiation: In meeting with the Committee's stated intent, the addition of control before valve would clean up the section and clearly direct that any control valve installed within 50 ft of the suction flange of the pump must be an OS&Y valve while ensuring that the section wasn't mistakenly used to restrict the installation of check valves and backflow prevention assemblies.
Committee Meeting Action: Accept in Principle
Revise section 4.14.5.2 to read as follows:
4.14.5.2 No control valve other than a listed OS&Y valve and the devices as permitted in 4.27.3 shall be installed in the suction pipe within 50 ft (15.3 m) of the pump suction flange.
Committee Statement: The inclusion of 4.27.3 clarifies the use of backflow preventers within 50 feet of the pump.

20-18 Log #58 Final Action: Accept in Principle
(4.14.3.1)

Submitter: James S. Nasby, Skokie, IL
Comment on Proposal No: 20-31
Recommendation: Change to AIP with extant wording in 4.14.3.1; but, add a new Exception to read:
4.14.3.4 The flow requirements to not apply to redundant pumps, when part of the same system (common outputs).
Substantiation: The concern regarding redundant pumps is valid and is common with hanger installations, unless the committee desires the suction supply to be sized to include a running redundant pump.
Committee Meeting Action: Accept in Principle
Revise section 4.14.3.1* to read as follows:
4.14.3.1* Unless the requirements of 4.14.3.2 are met, the size of the suction pipe for a single pump or of the suction header pipe for multiple pumps (designed to operate~~ing~~ together) shall be such that, with all pumps operating at maximum flow (150 percent of rated capacity or the maximum flow available from the water supply as discussed in 4.6.2.3.1), the gauge pressure at the pump suction flanges shall be 0 psi (0 bar) or higher.
Committee Statement: The language "designed to" was added to make clear that standby pumps that are not intended to operate simultaneously do not effect the size of the suction pipe.

20-19 Log #31 Final Action: Accept in Principle
(4.14.3.3)

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.
Comment on Proposal No: 20-32
Recommendation: Delete section 4.14.3.3.
Substantiation: There is no need for this section. The velocity is handled by the minimum size of the suction pipe close to the suction flange. We put the velocity in the standard years ago in an attempt to be “user friendly” and show people why we picked these pipe sizes, but now too many AHJ’s are taking the calculation to too many significant digits and rejecting perfectly good installations. Considering all of the proposals on the subject from all over the world, it is clearly a section that has outlived its usefulness.
Committee Meeting Action: Accept in Principle
Delete section 4.14.3.3
Add new text as sub-notes to Tables 4.26(a) and 4.26(b) as follows:
(a) Suction pipe sizes in table 4.26 (a) and 4.26(b) is based on a maximum velocity at 150% rated capacity to 15 ft/sec in most cases.
Committee Statement: Adding notes to the tables provides better clarification for sizing of the suction piping.

20-20 Log #103 Final Action: Reject
(4.14.6.3.3)

Submitter: William E. Koffel, Koffel Assoc., Inc.
Comment on Proposal No: 20-34
Recommendation: Revise text to read as follows:
4.14.6.3.3 * Elbows ~~and tees~~ with a centerline plane perpendicular… (remainder unchanged).
A.4.14.6.3.3 While elbows with a centerline perpendicular to the pump shaft are permitted within ten pipe diameters of the suction flange, it should be noted that field experience has indicated problems with short radius elbows and tees. It is recommended that when elbows are used within ten pipe diameters of the suction flange, the elbows should be long radius elbows.
Substantiation: The submitter of the Public Proposal indicates that tees are similar to elbows. This is true if comparing the tee to a short radius elbow. However, the literature indicates that problems may exist when short radius elbows are installed in the suction pipe (see http://wea-inc.com/pdf/pump_n.pdf and http://cbs.grundfos.com/export/sites/dk.grundfos.cbs/USA/whitepaper/Download_Files/L-CBS-WP-06_Piping_Connection_Considerations_FINAL_Low_Res.pdf). We are also aware of some pump installations in which problems have occurred when an elbow is installed perpendicular to the pump shaft with a small spool piece of pipe. It is recommended that the Technical Committee further investigate the issue of changes in direction of flow within ten pipe diameters of the suction flange before revising the section to allow tees.
Committee Meeting Action: Reject
Committee Statement: Material cited is based on Cooling Tower Pumps and is not applicable to Fire Pumps.

20-21 Log #98 Final Action: Reject
(4.15.10)

Submitter: Tracey D. Bellamy, Telgian Corporation
Comment on Proposal No: 20-40
Recommendation: Reconsider the proposal.
Substantiation: The Committee statement that the installation of a pressure regulating valve in the discharge pipe is not specifically disallowed is not correct. The leading portion of 4.5.10 does just that by stating that “No pressure regulating devices shall be installed in the discharge pipe…”. The final portion of the sentence provides an exception if the installation of such a device is permitted elsewhere in the standard. Since no other allowance is provided in the standard for the installation of such devices in the discharge pipe, the final portion of the section only serves to confuse the user into believing that such an allowance might exist. If the installation of pressure regulating devices are not to be allowed in the discharge pipe as stated in the first portion of the section then that intent should be clearly stated by deleting the final portion of the section.
Committee Meeting Action: Reject
Committee Statement: Pressure regulating devices such as pressure relief valves and pump suction control valves are permitted by this standard. For example but not limited to see section 4.15.9.2.

20-22 Log #97 Final Action: Accept
(4.16.2)

Submitter: Tracey D. Bellamy, Telgian Corporation
Comment on Proposal No: 20-41, 20-42
Recommendation: Revise the accepted proposal as follows:
4.16.2 Supervised Closed. ~~The test outlet c~~Control valves located in the pipeline to the hose valve header shall be supervised closed by one of the following methods allowed in 4.16.1.
Substantiation: The reference to test outlet control valves can be mistakenly interpreted to mean the individual hose connection outlets attached to the test header manifold as opposed to the control valve (required by 4.20.3.3.1) in the pipeline leading to the test header manifold. The revised language will clarify that the supervision is to be provided on this control valve as opposed to the individual hose connection outlets.
This is not original material; its reference/source is as follows:
ROP 20-41
Committee Meeting Action: Accept

20-23 Log #59 Final Action: Accept
(4.18.1.3)

Submitter: James S. Nasby, Skokie, IL
Comment on Proposal No: 20-44
Recommendation: Revise 4.18.1.3 to read:
Where an electric variable speed pressure limiting ~~control~~ controller or a diesel pressure limiting driver is installed, and the maximum total discharge head . . .
Substantiation: This requirement should apply to both motor driven and diesel engine variable speed fire pumps.
Committee Meeting Action: Accept

20-24 Log #CC6 Final Action: Accept
(4.18.7.2, 4.18.7.2.1, 12.4.1.4, 12.7.5.2)

Submitter: Technical Committee on Fire Pumps,
Comment on Proposal No: 20-45
Recommendation: Add new text to read as follows;

4.18.7.2 Where pump discharge water is piped back to pump suction, and the pump is driven by a diesel engine with heat exchanger cooling, a high cooling water temperature signal at 40ºC (104ºF) from the engine inlet of the heat exchanger water supply shall be sent to the fire pump controller and the controller shall stop the engine provided there are no active emergency requirements for the pump to run.

4.18.7.2.1 The requirements of 4.18.7.2 shall not apply when pump to discharge water being piped back to a water storage reservoir.

12.4.1.4

(10) High cooling water temperature

Revise section 12.7.5.2 to read as follows:

12.7.5.2* Automatic Shutdown After Automatic Start.

(4) The engine shall not shut down automatically on high engine ~~water~~ temperature or low oil pressure or high cooling water temperature when any automatic starting or running cause exists, and the following also shall apply:

(a) If no other starting or running cause exists during engine test, the engine shall shut down automatically on high engine ~~water~~ temperature or low oil pressure or high cooling water temperature.

(b) If after shutdown a starting cause occurs, the controller shall restart the engine and override the high engine ~~water~~ temperature, ~~and~~ low oil pressure or high cooling water temperature shutdowns for the remainder of the test period.

Substantiation: The recirculation of fire pump water back to pump suction is becoming more and more a problem. We see this as a problem because we use this water to cool not just the engine, as in days of old, but also to cool the engine intake air temperature which is critical to conform to the EPA engine emission requirements. It is tolerable to see raw cooling water up to 95-100F, but we have seen temperatures of 120 to 150F plus. You might stuff enough water through the engine at part load to cool the coolant but you cannot keep the inlet air temperature down to acceptable levels; which results in engine alarms due to the engine intake air being too hot and the engine is operating outside of EPA operational compliance.

Committee Meeting Action: Accept

20-25 Log #CC2 Final Action: Accept
(4.19.2)

Submitter: Technical Committee on Fire Pumps,
Comment on Proposal No: 20-46, 20-47
Recommendation: Revise as follows:

High Rise Task Group Recommended Committee Comment on Series Pumps

4.19.2 Series Fire Pump Unit Arrangement ~~Pumps Arranged in Series~~.

4.19.2.1* ~~Fire pumps operating in series~~ Except as permitted by 4.19.2.2, all of the pumps that are a part of a series fire pump unit shall be located within the same fire pump room.

A.4.19.2.1 Where pumps are installed in series and are located in the same pump room, the discharge pressure from the second (or third) pump is typically at a pressure that is too high for the outlets on a fire sprinkler or standpipe system on the lower floors of the building. Rather than use this high discharge pressure with pressure reducing valves, it is a common, and accepted practice, to take the fire protection supply from the discharge of the preceding pump through a connection between that pump and subsequent pump(s) as shown in Figure A.4.19.2.1

*****insert Figure A.4.19.2.1 Here****

4.19.2.2 Pumps that are a part of a series fire pump unit shall be permitted to be located in separate pump rooms when all of the following conditions are met:

(a) Each pump is capable of having a positive pressure at the suction flange at maximum flow in accordance with section 4.14.3.1 even if all preceding pumps fail to start.
(b) The interconnect control wiring between the controllers in different pump rooms complies with Section 4.19.2.7.
(c) The alarms and signals are annunciated in the other pump rooms for all pumps that are a part of the series fire pump unit in accordance with Section 4.19.2.8.
(d) A pump room communication system that compiles with Section 4.19.2.9 is provided.

4.19.2.~~1~~.3 No more than three pumps shall be allowed to operate in series as a part of a series fire pump unit.
4.19.2.~~2~~.4 No pump in a series fire pump unit shall be shut down automatically for any condition of suction pressure.
4.19.2.~~3~~.5 No pressure reducing or pressure regulating valves shall be installed between fire pumps arranged in series as a part of a series fire pump unit.
4.19.2.~~4~~.6 The pressure at any point in any pump in a series fire pump unit, with all pumps running at shutoff and rated speed at the maximum static suction supply, shall not exceed any pump suction, discharge, or case working pressure rating.

4.19.2.7 Protection of Control Wiring for Series Fire Pump Units.

4.19.2.7.1* Interconnect control wiring of fire pumps in series which are not located in the same room and which affects starting of the supply (lower zone) pump(s) shall be protected against fire and physical damage in the same manner as power conductors described in NFPA 70, Article 695.

A.4.19.2.7.1 The following methods should be considered acceptable:
(1) Be encased in a minimum 50 mm (2 in.) of concrete
(2) Be protected by a fire-rated assembly listed to achieve a minimum fire rating of 2 hours and dedicated to the fire pump circuit(s)
(3) Be a listed electrical circuit protective system with a minimum 2-hour fire rating
(4) Be protected by a listed fire-rated assembly that has a minimum fire rating of 2 hours and contains only emergency alarm and/or control wiring circuits dedicated to fire pumps or emergency systems generators or legally required generators, and no power wiring circuits

4.19.2.7.1.1 The motor on the supply (lower zone) pump(s) shall start on the opening of the control circuit (remote start) loop.

4.19.2.7.1.2 The installed controllers shall meet the requirements of 10.5.2.5 and/or 12.7.2.4 as applicable.

4.19.2.8 Status Signals for Series Fire Pump Units.

4.19.2.8.1 Audible and visual status signals shall be provided in each pump room indicating the status of the associated series pump(s) which is not located in the same pump room.

4.19.2.8.1.1 The following audible and visual signals shall be provided in each pump room for each series electric fire pump(s).

(1) Pump running in accordance with paragraph 10.4.7.2.1

(2) Phase loss in accordance with paragraph 10.4.7.2.2.

(3) Phase reversal in accordance with paragraph 10.4.7.2.3

(4) Controller connected to alternate source in accordance with paragraph 10.4.7.2.4

(5) Alternate circuit breaker open or tripped in accordance with 10.8.3.12.1

4.19.2.8.1.2 The following audible and visual signals shall be provided in each pump room for each series diesel fire pump(s).

(1) Pump running in accordance with paragraph 12.4.3(1)

(2) Control Switch in Off or Manual position in accordance with paragraph 12.4.2.3(2)

(3) Trouble on controller or engine in accordance with paragraph 12.4.3(3)

4.19.2.9 Communications for Series Fire Pump Units.

4.19.2.9.1 A two-way, in-building emergency services communications system in accordance with NFPA 72 shall be provided in each pump room where pumps in series are not located in the same room.

4.19.2.9.1.1 The communication system shall meet the survivability requirements of NFPA 72.

Substantiation: The term “series fire pump unit” was inserted to consistently use the term that was defined last cycle and refined by Proposal 20-19.

The combination of a flooded suction condition for the second (or even third) pump, even if the first (or second) pump does not start along with improved communication and protected interconnection controls between pumps and controllers in separate pump rooms creates an acceptable condition under which pumps can be located in separate pump rooms, even when they are a part of a series fire pump unit, as long as the communication and circuit protection requirements are followed.

****Insert Figure A.4.19.2.1 Here****

Figure A.4.19.2.1 Series Fire Pump Unit with Discharge from First Pump Feeding the Low Zone Fire Protection Systems

Committee Meeting Action: Accept

Committee Statement: The term “series fire pump unit” was inserted to consistently use the term that was defined last cycle and refined by Proposal 20-19.

The combination of a flooded suction condition for the second (or even third) pump, even if the first (or second) pump does not start along with improved communication and protected interconnection controls between pumps and controllers in separate pump rooms creates an acceptable condition under which pumps can be located in separate pump rooms, even when they are a part of a series fire pump unit, as long as the communication and circuit protection requirements are followed.

This action supersedes the actions taken in proposal 20-46 and 20-47.

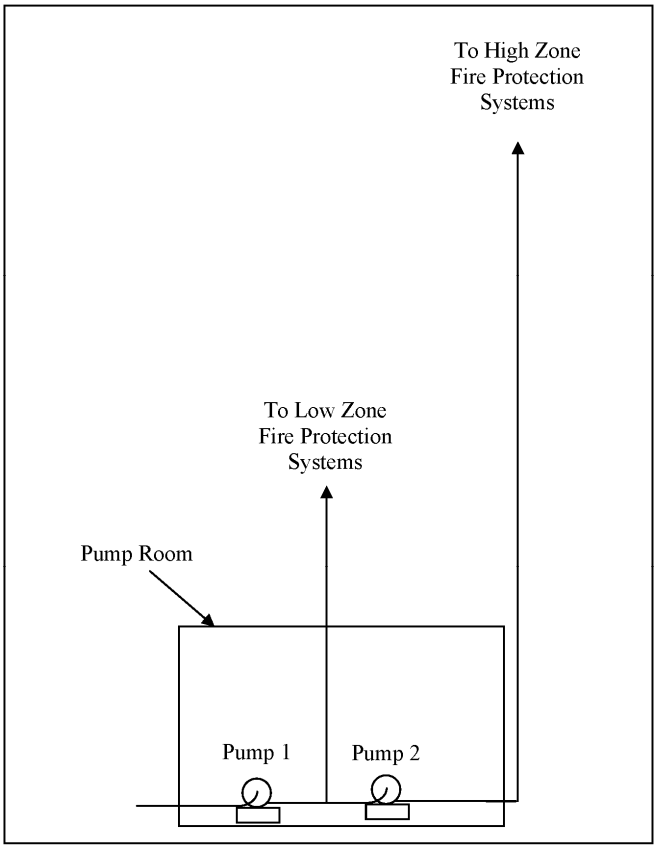


Figure A.4.19.2.1 Series Fire Pump Unit with Discharge from First Pump Feeding the Low Zone Fire Protection Systems

20-26 Log #13 Final Action: Reject
(4.19.2.1)

Submitter: David R. Hague, Liberty Mutual Commercial Markets
Comment on Proposal No: 20-46
Recommendation: Revise text to read as follows:

A.4.19.2.1 Fire pumps operating in series and their controllers ~~shall~~ should be located with the same fire pump room.

Substantiation: This issue was acted on during the previous revision cycle and was ultimately overturned on the floor of the Association Meeting. An appeal to the standards council was not accepted. It is clear that the association membership wishes to allow the vertical staging of series fire pumps to be determined by the registered design professional and the AHJ and not mandated by NFPA 20.

There still is no technical justification for the change. The substantiation provided in the proposal is anecdotal at best. There are arguments for either configuration and as such, each project should be based on the judgment of the engineering team, building owner and AHJ. Until such time as technical loss data can be presented indicating a problem exists, this proposal should be rejected.

Committee Meeting Action: Reject
Committee Statement: The technical committee believes that the pumps in series should be installed in the same pump room to ensure the best possible performance and reliability of the pump system. NFPA 20-25 (Log #CC2) provides some degree of flexibility where there are building limitations that make the installation in the same room impossible.

20-27 Log #32 Final Action: Accept in Principle
(4.19.2.1)

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.
Comment on Proposal No: 20-46, 20-47
Recommendation: Revise the two new sections that were both given section numbers 4.19.2.1 as follows:

4.19.2.1 Fire pumps ~~operating in series~~ that are a part of series fire pump units shall be located within the same fire pump room.

4.19.2.~~1~~.2 ~~When fire pumps are located in the same room,~~ Series fire pump units shall be arranged with no more than three pumps ~~shall be allowed to operate~~ in series.

Renumber the rest of 4.19.2.

Substantiation: First, the committee needs to deal with the fact that it adopted two revisions to section 4.19.2.1 and it does not want to lose either one of them.

Second, the committee needs to use the term “Series Fire Pump Unit” that it adopted in Proposal 20-19. The whole purpose of this new definition was to help clarify this issue, so the committee needs to use the term in the section where the issue is discussed.

Committee Meeting Action: Accept in Principle
Committee Statement: See committee action on 20-25 (Log #CC2).

20-28 Log #33 Final Action: Reject
(4.19.2.1)

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.
Comment on Proposal No: 20-46
Recommendation: Reject Proposal 20-46.
Substantiation: The committee has never addressed the issues we have brought up in our negative ballots in the ROP for this cycle or the ROP and ROC for the previous cycle. While the committee chair has attempted to begin to address the issues in his affirmative ballot, these statements do not appear to be correct given the combination of requirements in NFPA 20 and NFPA 14. If the committee is truly concerned with super high rise buildings, they could put this rule in the new Chapter 5 with less push-back from the installation and design community. While the chair may not see the value in clarifying installation rules for other than super high-rise situations where water can get to the second pump in series even if the first pump does not start, the installation and design community sees this design option often enough that it does not want to fight against the requirements of the standard each time it comes up.

If the committee is aware of an installation technique that is valid and works correctly, they should not specifically outlaw that technique just because they don't want to take the time to address it.

This comment was agreed to by the E&S Committee at the April 2011 meeting.
Committee Meeting Action: Reject
Committee Statement: The technical committee believes that the pumps in series should be installed in the same pump room to ensure the best possible performance and reliability of the pump system. NFPA 20-25 (Log #CC2) provides some degree of flexibility where there are building limitations that make the installation in the same room impossible.

20-29 Log #52 Final Action: Reject
(4.19.2.1)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Comment on Proposal No: 20-46
Recommendation: Reject proposal 20-46 (Log #140).
Substantiation: This proposal contradicts other requirements and allowances related to fire pumps in series. The action taken on proposal 20-19 and the revisions to the definition of a Series Fire Pump Unit makes it clear that pumps in series are only to be considered a "unit" when in the same building. The new annex text explains that campus type water distribution systems do not have to have the pumps in series in the same pump room.

Proposal 20-46 doesn't address or allow an exception for campus or plant type arrangements where one or more pumps feed a dedicated underground fire loop and other pumps boost pressure in individual buildings coming off of the loop. There are many other applications where it's not practical to have pumps in series in the same pump room, including foam water systems and water mist systems.

This comment is being submitted by the Tyco Codes and Standards Sprinkler Task Group.
Committee Meeting Action: Reject
Committee Statement: The technical committee believes that the pumps in series should be installed in the same pump room to ensure the best possible performance and reliability of the pump system. NFPA 20-25 (Log #CC2) provides some degree of flexibility where there are building limitations that make the installation in the same room impossible.

20-30 Log #66 Final Action: Accept in Principle
(4.20.1.4)

Submitter: James S. Nasby, Skokie, IL
Comment on Proposal No: 20-48
Recommendation: Also add new text to read:

A.4.20.1.4 Where acceptable to the AHJ, the test header may be located within the building of a convenient method of routing test hoses exists. This is to reduce the likelihood of damage from freezing, vandalism, or theft.

Substantiation: Many older installations have the test header in or near the fire pump room. A number of installations now remove and cap the hose valves due to theft.
Committee Meeting Action: Accept in Principle
Revise annex section A.4.20.1.4 to read as follows:

A.4.20.1.4 The hose valves of the fire pump test header should be located on the building exterior. This is because the test discharge needs to be directed to a safe outdoor location, and to protect the fire pumps, controllers, etc. from accidental water spray. In instances where damage from theft or vandalism are concerns, the test header hose valves may be located within the building but outside of the fire pump room, if in the judgment of the AHJ, the test flow can be safely directed outside the building without undue risk of water spray to the fire pump equipment.

Committee Statement: Editorial change.

20-31 Log #69 Final Action: Accept in Principle
(4.20.2)

Submitter: Bill M. Harvey, Harvey & Associates, Inc.
Comment on Proposal No: 20-49
Recommendation: Request the committee to revisit this Proposal and re-instate the submitters proposed New Section 4.20.2.10 (New) and subsequent proposed changes for Annex material in Figure A.4.20.1.2(a) and A.14.2.5.2.3. All proposed wording to be as submitted.
Substantiation: The committee failed to think this situation through. A flow meter is unlike a pressure gauge that you can bench test with a dead weight tester and the product is simply installed with small tools and small stress to the gauge in a fixed threaded outlet.

A flow meter is much larger in size and must be installed in a piping assembly. Some units require final assembly in the field that negates any factory settings. The field assembly adds the possibility of stresses. Additionally the piping arrangement and variations in the fluid flow patterns make the flow meter factory set calibrations suspect.

The NFPA-25 Chapter 8 Paragraph 8.3.3 Annual Flow Testing, Section 8.3.3.1.3 has a requirement for recalibration of the meter every three years. Means should be provided to make this recalibration as simple and economical as possible without having the meter out of service for an extended period of time. It is extremely important that the calibration take place within the system setup.
This is not original material; its reference/source is as follows:
Proposal No. 20-49, Log #138 Submitted during the ROP cycle, 2011.
Committee Meeting Action: Accept in Principle
Remove section number 4.20.2.1 and renumber subsection 4.20.2.1.1, add new section 4.20.2.10, 4.20.2.10.1, 4.20.2.10.2 and 4.20.2.10.3 to read as follows:

4.20.2 Meters and Testing Devices.
~~4.20.2.1 Testing Devices.~~
4.20.2.1~~.1~~* Metering devices or fixed nozzles for pump testing shall be listed.
4.20.2.2 Metering devices or fixed nozzles shall be capable of water flow of not less than 175 percent of rated pump capacity.
4.20.2.3 All of the meter system piping shall be permitted to be sized hydraulically but shall not be smaller than as specified by the meter manufacturer.
4.20.2.4 If the meter system piping is not sized hydraulically, then all of the meter system piping shall be sized as specified by the meter manufacturer but not less than the meter device sizes shown in Section 4.26.
4.20.2.5 For nonhydraulically sized piping, the minimum size meter for a given pump capacity shall be permitted to be used where the meter system piping does not exceed 100 ft (30.5 m)
equivalent length.
4.20.2.6 For nonhydraulically sized piping, where meter system piping exceeds 100 ft (30.5 m), including length of straight pipe plus equivalent length in fittings, elevation, and loss through meter, the next larger size of piping shall be used to minimize friction loss.
4.20.2.7 The primary element shall be suitable for that pipe size and pump rating.
4.20.2.8 The readout instrument shall be sized for the pump rated capacity. *(See Section 4.26.)*
4.20.2.9 When discharging back into a tank, the discharge nozzle(s) or pipe shall be located at a point as far from the pump suction as is necessary to prevent the pump from drafting air introduced by the discharge of test water into the tank.
4.20.2.10 Where a metering device is installed in a looped arrangement for fire pump flow testing, an alternate means of measuring flow shall be provided.
4.20.2.10.1 The alternate means of measuring flow shall be located downstream of and in series with the flow meter.
4.20.2.10.2 The alternate means of measuring flow shall function for the range of flows necessary to conduct a full flow test.
4.20.2.10.3 An appropriately sized test header shall be an acceptable alternate means of measuring flow.

****Insert revised Figure A.4.20.1.2 (a)****

****Insert revised Figure A.4.20.1.2 (b)****

Revise and relocate annex A.14.2.5.2.3 to A.4.20.2.10 to read as follows:

~~A.14.2.5.2.3~~ A.4.20.2.10 The testing arrangement should be designed to minimize the length of fire hose needed to discharge water safely ~~Where a hose valve header is used, it should be located where a limited~~ [approximately 100 ft (30 m)] ~~amount of hose is used to discharge water safely.~~ Where a flow test meter is installed, ~~used in a closed loop according to manufacturer's instructions, additional outlets~~ an alternate means of testing, such as hydrants, hose valves, test header(s), and so forth ~~should be available~~ is needed as an alternate means of testing the performance of the fire pump, and to verify ~~to determine~~ the accuracy of the metering device.

Committee Statement: 1. A means needs to be provided in the initial installation to verify the accuracy of the flow meter.
2. The annex language covers design considerations. Once you start testing you are stuck with what was designed.
3. Section 4.20.2.1.1 does not track very well with section "4.20.2.1 –Testing Devices". Also the heading on section 4.20.2.1 violates the manual of style and gives the appearance that sections 4.20.2.2, 4.20.2.3, etc. are subordinate to 4.20.2.1.

20-32 Log #104 Final Action: Accept in Principle
(4.20.2.10)

Submitter: Frank Monikowski, SimplexGrinnell
Comment on Proposal No: 20-49
Recommendation: Accept in Principle proposal 20-49 (Log #138) as modified:
Add new text as proposed with the following modifications in bold:
4.20.2.10 (NEW) Where a metering device is installed in a looped arrangement for fire pump flow testing, provisions · shall be made for providing independent testing through a test header or some other means that will allow for a full flow test and readings taken via some other means than the flow meter.
Modify Figure A 4.20.1.2 (a) should be modified to show a test header as an option.
Revise existing text as proposed with the following modifications in bold:
· A 14.2.5.2.3 Where a hose header is used, it should be located where a limited [approximately 100 ft. (30m)] amount of hose is used to discharge water safely. Where a flow test meter is used ~~in a closed loop~~ according to manufacturer's instructions, additional outlets such as hydrants, hose valves, test headers, and so forth should be available to determine the accuracy of the metering device and an alternate means of testing the performance of the fire pump.
Substantiation: NFPA 25 (Section 8.3.3.1.2.3) is very clear that testing to verify the performance of pump through means other than the flow meter is required at a minimum of once every three years. It stands to reason then that a means needs to be · provided in the design stage to accommodate this requirement. Utilizing a test header is generally the most practical and efficient means to accomplish this. This comment is being submitted by the Tyco Codes and Standards Sprinkler Task Group.
This is not original material; its reference/source is as follows:
See Hugh D Castles 20-49 (Log #138) ROP submission.
Committee Meeting Action: Accept in Principle
Committee Statement: See committee action on 20-31 (Log#69).

Reference Committee Comment Associated with ROC Logs 69 & 104

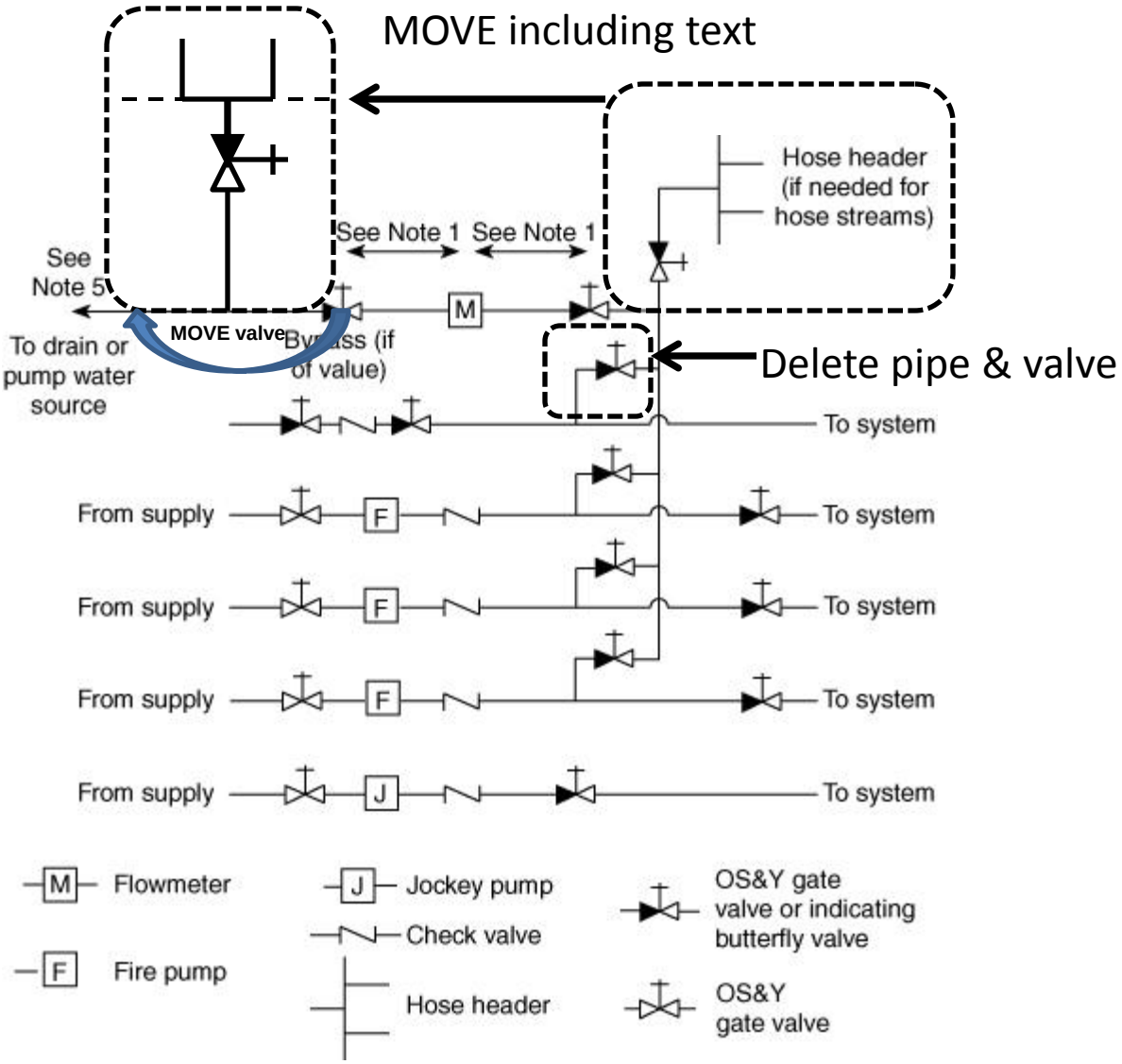
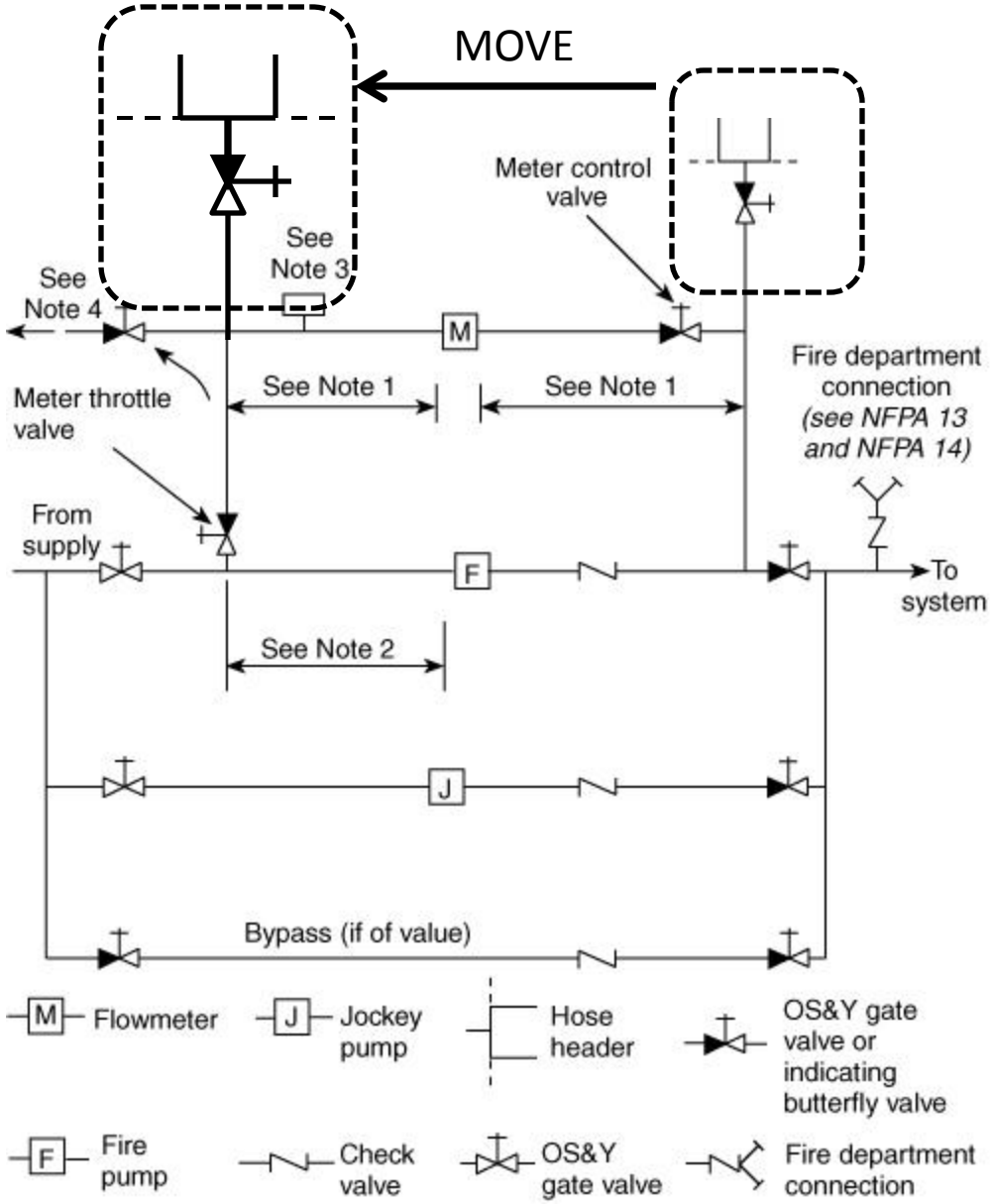


FIGURE A.4.20.1.2(a)

An ~~Preferred~~ Arrangement for Measuring Fire Pump Water Flow with Meter for Multiple Pumps and Water Supplies. Water is permitted to discharge to a drain or to the fire pump water source. ***(See the text for information on the notes.)***



Reference Committee Comment Associated with ROC Logs 69 & 104

FIGURE A.4.20.1.2(b)

An ~~Typical~~ Arrangement for Measuring Fire Pump Water Flow with Meter. Discharge from the flowmeter is recirculated to the fire pump suction line. ***(See the text for information on the notes.)***

20-33 Log #34 Final Action: Accept
(4.20.3.3.1)

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.
Comment on Proposal No: 20-51
Recommendation: Delete “where the hose valve header is subjected to freezing” from the newly revised text for section 4.20.3.3.1.
Substantiation: The valve needs to be installed under all circumstances, not just those where the header is in a location subject to freezing. Having water under pressure all the way to the test header is not a good idea. With water under pressure all the way to the test header, water can be taken from the fire protection system too easily for non-fire protection use or large amounts of water can be taken from the fire protection system to overcome and defeat the system in an arson situation.
Another concern with water to the test header is the safety of the person conducting the pump test. The connection of hoses to the test header is more safely completed with no water pressure at the test header. Only after the hoses are connected should the water pressure be allowed to go to the test header.
This was agreed to by the E&S Committee at their April 2011 meeting.
Committee Meeting Action: Accept

20-34 Log #67 Final Action: Reject
(4.25.5.4)

Submitter: Bill M. Harvey, Harvey & Associates, Inc. / Rep. American Fire Sprinkler Association
Comment on Proposal No: 20-52
Recommendation: Request the committee to revisit the recommendation for the addition of an OS&Y gate valve in the suction piping of a Jockey Pump. The wording as proposed should be re-instated.
Substantiation: The committee's statement as submitted is factually wrong. There are Listed and Approved OS&Y gate valves available in small sizes as well as butterfly valves. Therefore the final action should be to accept.
Committee Meeting Action: Reject
Committee Statement: A Jockey Pump is not a Fire pump nor listed, therefore the valve should not be required to be listed.

20-35 Log #68 Final Action: Reject
(4.25.5.4 and 4.25.5.5)

Submitter: Bill M. Harvey, Harvey & Associates, Inc.
Comment on Proposal No: 20-53
Recommendation: Request the committee to revisit the recommendation for the addition of a check valve and an indicating (OS&Y) gate valve in the discharge piping of a Jockey Pump. The wording as proposed should be re-instated.
Substantiation: The committee statement refers back to Proposal 20-52 (Log #195). The committee's statement as submitted is factually wrong. There are Listed and Approved OS&Y gate valves available in small sizes as well as butterfly valves. Therefore the final action should be to accept.
Committee Meeting Action: Reject
Committee Statement: NFPA 20 currently requires an indicating type valve on the suction and discharge sides of the jockey pump. Jockey pump valves are not critical to fire pump operation and further restrictions on valves are not justified.

20-36 Log #24 Final Action: Accept in Principle
(4.25.6, 4.25.6.1, 4.25.6.2, and 4.25.6.3 (New))

Submitter: John R. Kovacik, Underwriters Laboratories Inc.
Comment on Proposal No: 20-54
Recommendation: Revise text to read as follows:

4.25.6 Pressure Maintenance ~~The primary or standby fire pump shall not be used as a pressure maintenance pump.~~

4.25.6.1 (New) Except as permitted in 4.25.6.2, the primary or standby fire pump shall not be used as a pressure maintenance pump.

4.25.6.2 (New) Water Mist Positive Displacement Pumping Units designed and listed to alternate pressure maintenance duty between two or more pumps with variable speed pressure limiting control, and provide a supervisory signal wherever pressure maintenance is required more than two times in one hour, shall be permitted to maintain system pressure.

4.25.6.3 (New) When in the pressure maintenance mode, Water Mist Positive Displacement Units used for pressure maintenance shall not provide more than half of the nozzle flow of the smallest system nozzle when the standby pressure is applied at the smallest nozzle.

Substantiation: This comment was prepared by the NFPA 20 Water Mist Task Group consisting of the following members; John Kovacik (Chair), Underwriters Laboratories; Gayle Pennel, Aon Risk Solutions; John Whitney, Clarke Fire Protection Products; Kerry Bell, Underwriters Laboratories; Hugh Castles, Entergy Services; Terry Victor, Tyco/SimplexGrinnell; Ken Isman, National Fire Sprinkler Association; Tim LaRose, Hughes Associates; Jennifer McGrath, Pentair Water; Wade Montague, Marioff; Zachary Magnone, Tyco/SimplexGrinnell; and Pasi Pennanen, Marioff.

Multiple comments have been submitted which define Water Mist Positive Displacement Pumping Unit and provides the requirements for operation as a single pumping unit. With current microprocessor based control and variable voltage variable frequency drive technologies a Water Mist system may be architected to use the primary motors/pumps to maintain system pressure. This function can be rotated from pump to pump improving system reliability.

Committee Meeting Action: Accept in Principle
Revise section 4.25.6 to read as follows:

4.25.6 Except as permitted in chapter 8 the primary or standby fire pump shall not be used as a pressure maintenance pump.

Move the proposed comment text to chapter 8 as follows:

~~4.25.6~~ 8.4.9 Pressure Maintenance ~~The primary or standby fire pump shall not be used as a pressure maintenance pump.~~

~~4.25.6.1~~ 8.4.9.1 Except as permitted in ~~4.25.6.2~~ 8.4.9.2, the primary or standby fire pump shall not be used as a pressure maintenance pump.

~~4.25.6.2~~ 8.4.9.2 Water Mist Positive Displacement Pumping Units designed and listed to alternate pressure maintenance duty between two or more pumps with variable speed pressure limiting control, and provide a supervisory signal wherever pressure maintenance is required more than two times in one hour, shall be permitted to maintain system pressure.

~~4.25.6.3~~ 8.4.9.3 When in the pressure maintenance mode, Water Mist Positive Displacement Units used for pressure maintenance shall not provide more than half of the nozzle flow of the smallest system nozzle when the standby pressure is applied at the smallest nozzle.

Committee Statement: Pressure maintenance requirements for water mist systems are more appropriately addressed in Chapter 8.

20-37 Log #50 Final Action: Accept in Principle
(4.28)

Submitter: Victoria B. Valentine, National Fire Sprinkler Association, Inc.
Comment on Proposal No: 20-58
Recommendation: Modify the language in 20-58 as follows:

4.28 Earthquake Protection

4.28.1 General.

4.28.1.1 Where local codes require fire protection systems to be protected from damage subject to earthquakes, 4.28.2 and 4.28.3 shall apply.

4.28.1.2 Horizontal seismic loads shall be taken from NFPA 13, SEI/ASCE 7, or the authority having jurisdiction.

A.4.28.1.2 NFPA 13, Standard for the Installation of Sprinkler Systems, contains specific requirements for seismic design of fire protection systems. ~~Tables are available to determine the relative strength of many common bracing materials and fasteners.~~ It is a simplified approach that was developed to coincide with SEI/ASCE7 and current building codes.

4.28.2 Pump Driver and Controller. The fire pump, driver, diesel fuel tank (where installed), and fire pump controller shall be attached to their foundations with materials capable of resisting lateral movement from ~~of~~ horizontal loads ~~forces equal to one-half the weight of the equipment.~~

4.28.2.1 Pumps with high centers of gravity, such as vertical in-line pumps, shall be mounted at their base and braced above their center of gravity.

4.28.3 Piping and Fittings.

4.28.3.1 Pipe and fittings shall be protected in accordance with NFPA 13, Standard for the Installation of Sprinkler Systems.

4.28.3.~~1~~2 Where the system riser is also a part of the fire pump discharge piping, a flexible pipe coupling shall be installed at the base of the system riser.

Substantiation: The language for protecting against earthquake forces needs to be brought into line with the current approaches used for buildings and all mechanical systems. The concept of using half of the equipment weight has not been used for some years now. The user needs to be aware that the horizontal loads will vary based on the site location. NFPA 13 offers a simplified approach to determining the loads or SEI/ASCE7 has a more detailed calculation that can be utilized. Of course, there is always the option for the authority having jurisdiction to provide anticipated forces that need to be met.

Other changes in the paragraphs are editorial in nature so that the information is clearer.

Committee Meeting Action: Accept in Principle

Accept comment 20-37 (Log #50) with the following revised text as follows:

4.28.1.2 Horizontal seismic loads shall be ~~taken from~~ based on NFPA 13, SEI/ASCE 7, local, State or international codes or other sources acceptable to the authority having jurisdiction.

Committee Statement: Provides additional flexibility for global usage.

20-38 Log #25 Final Action: Accept in Principle
(4.30.1 and 4.30.2)

Submitter: John R. Kovacik, Underwriters Laboratories Inc.
Comment on Proposal No: 20-61
Recommendation: Revise text to read as follows:

4.30.1 Except as provided on 4.30.2, ~~F~~for all pump installations, including jockey pumps, each controller shall have its own individual pressure sensing line.

4.30.2 A single sensing line shall be permitted to be used for a Water Mist Positive Displacement Pumping Unit controller where the unit also serves for pressure maintenance.

Renumber the remainder of 4.30. i.e. existing 4.30.2 becomes 4.30.3 etc.

Substantiation: This comment was prepared by the NFPA 20 Water Mist Task Group consisting of the following members; John Kovacik (Chair), Underwriters Laboratories; Gayle Pennel, Aon Risk Solutions; John Whitney, Clarke Fire Protection Products; Kerry Bell, Underwriters Laboratories; Hugh Castles, Entergy Services; Terry Victor, Tyco/SimplexGrinnell; Ken Isman, National Fire Sprinkler Association; Tim LaRose, Hughes Associates; Jennifer McGrath, Pentair Water; Wade Montague, Marioff; Zachary Magnone, Tyco/SimplexGrinnell; and Pasi Pennanen, Marioff.

Multiple comments have been submitted which define Water Mist Positive Displacement Pumping Unit and provides the requirements for operation as a single pumping unit. With current microprocessor based control technologies and architecture, having a single controller with appropriate redundancy schemes can provide equivalent or superior reliability while providing the added benefit of a central control location. This central control location would allow for advanced system diagnostics and status and offer the option of remote monitoring advancing firefighting efforts and system availability.

Committee Meeting Action: Accept in Principle
Remove the requirement of proposed comment text 4.30.1 and renumber and relocate proposed 4.30.2 to 8.4.9.3:

~~4.30.1 Except as provided on 4.30.2, For all pump installations, including jockey pumps, each controller shall have its own individual pressure sensing line.~~

~~4.30.2~~ 8.4.9.3 A single sensing line shall be permitted to be used for a Water Mist Positive Displacement Pumping Unit controller where the unit also serves for pressure maintenance on a Water Mist system.

Existing section 4.30.1 and 4.30.2 to remain as is in the 2010 edition.

Committee Statement: Pressure maintenance requirements for water mist systems are more appropriately addressed in Chapter 8.

20-39 Log #60 Final Action: Accept in Principle
(4.30.4.3 (New))

Submitter: James S. Nasby, Skokie, IL
Comment on Proposal No: 20-63
Recommendation: Add new text to read:
4.30.4.3 There shall be two inspection test valves attached to the pressure sense line. These shall consist of a tee, a valve, a second tee with the branch plugged and a second valve. The first one shall be tapped downstream of the first restriction device (drilled check valve or orifice union) and the second one down stream of the second restriction device (drilled check valve or orifice union). See Figure A.4.30(a).
Substantiation: I did not intend to add any valves in series in the pressure sense line. I'm trying to clarify where the test valves are to be installed. This is to codify the arrangement shown in Figure A.4.30(a). The intention is to avoid situations where the first inspection test tee is installed upstream of the first restriction device, instead of downstream, which is useless. Consider moving Figure A.4.30(a) to the main body of the standard.
Committee Meeting Action: Accept in Principle
Revise section 4.30.4.3 to read as follows:
4.30.4.3 There shall be two inspection test valves attached to the pressure sensing line. These shall consist of a tee, a valve, a second tee with the branch plugged and a second valve. ~~The first one shall be tapped downstream of the first restriction device (drilled check valve or orifice union) and the second one down stream of the second restriction device (drilled check valve or orifice union).~~ See Figure A.4.30(a) and (b).
Committee Statement: Editorial changes.

20-40 Log #96 Final Action: Accept
(4.31.3.2)

Submitter: Tracey D. Bellamy, Telgian Corporation
Comment on Proposal No: 20-64
Recommendation: Revise text to read as follows:
4.31.3.2 If the break tank is sized to provide a minimum duration of 30 minutes of the maximum system demand, the refill mechanism shall meet the requirements in 4.31.3.2.1 through 4.31.3.2.~~5~~2.
4.31.3.~~2~~.3 The pipe between the municipal connection and the automatic fill valve shall be installed in accordance with NFPA 24, *Standard for the Installation of Private Fire Service Mains and Their Appurtenances*.
4.31.3.~~2~~.4 The automatic filling mechanism shall be maintained at a minimum temperature of 40°F (4.4°C).
4.31.3.~~2~~.5 The automatic filling mechanism shall activate a maximum of 6 in. (152 mm) below the overflow level.
Substantiation: The provisions of 4.31.3.2.3, 4.31.3.2.4 and 4.31.3.2.5 only apply to those break tanks covered in the parent section 4.31.3.2 and would not apply to those covered in 4.31.3.1. As verified by the Committee statement the requirements are to apply to all break tanks this would not meet their intent. By moving the requirements to new 4.31.3.3, 4.31.3.4 and 4.31.3.5 the requirements would then be applicable to all refill mechanisms covered by 4.31.3.
Committee Meeting Action: Accept

20-41 Log #26 Final Action: Accept in Principle
(5.2.1 and 5.2.2)

Submitter: John R. Kovacik, Underwriters Laboratories Inc.
Comment on Proposal No: 20-69
Recommendation: Revise text to read as follows:

5.2.1 Except as provided in 5.2.2, ~~F~~fire pumps used for high-rise application shall be of a type addressed by Chapter 6 or 7 (centrifugal pumps) of this standard.

5.2.2 Fire pumps complying with Chapter 8 (positive displacement pumps) shall be permitted ~~allowed~~ for water mist protection and local applications.

Substantiation: This comment was prepared by the NFPA 20 Water Mist Task Group consisting of the following members; John Kovacik (Chair), Underwriters Laboratories; Gayle Pennel, Aon Risk Solutions; John Whitney, Clarke Fire Protection Products; Kerry Bell, Underwriters Laboratories; Hugh Castles, Entergy Services; Terry Victor, Tyco/SimplexGrinnell; Ken Isman, National Fire Sprinkler Association; Tim LaRose, Hughes Associates; Jennifer McGrath, Pentair Water; Wade Montague, Marioff; Zachary Magnone, Tyco/SimplexGrinnell; and Pasi Pennanen, Marioff.

Where applicable, water mist systems supplied by positive displacement pumps can be designed to protect total buildings.

Committee Meeting Action: Accept in Principle
Delete section 5.2.1 and section 5.2.2

~~5.2.1 Except as provided in 5.2.2, Ffire pumps used for high-rise application shall be of a type addressed by Chapter 6 or 7 (centrifugal pumps) of this standard.~~

~~5.2.2 Fire pumps complying with Chapter 8 (positive displacement pumps) shall be permitted allowed for water mist protection and local applications.~~

Committee Statement: Deleting these sections permits the use of positive displacement pumps in high rise applications where they are listed for such use.

20-42 Log #102 Final Action: Accept
(5.4.1)

Submitter: William E. Koffel, Koffel Assoc., Inc.
Comment on Proposal No: 20-67
Recommendation: Revise text to read as follows:

5.4.1 Where provided, water tanks shall be installed in accordance with NFPA 22, *Standard for Water Tanks for Private Fire Protection*.

Substantiation: Admittedly, the new Paragraph 5.4.1 is the former Paragraph 5.6.1 and as such the problem exists in the 2010 Edition of the Standard as well. The language, as proposed in the ROP, could be interpreted to require water tanks in high-rise buildings. It is my understanding that the requirements are intended to apply where water tanks are provided and NFPA 20 is not mandating the use of water tanks as part of the water supply system for high-rise buildings.

Committee Meeting Action: Accept

20-43 Log #35 Final Action: Accept in Principle
(5.7.1.5)

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.
Comment on Proposal No: 20-67, 20-75
Recommendation: Delete proposed section 5.7.1.5.
Substantiation: The proposed section requires two automatic fill valves for each tank and a manual fill valve. These requirements contradict the new section 5.7.1.2 (which only requires a single automatic relief valve) and are redundant to the new 5.7.1.3, which requires the manual valve. Even if the committee ends up wanting two automatic refill valves, they should put the requirement in 5.7.1.2 and not have a new requirement further down.
This issue was agreed upon by the committee in dealing with Proposal 20-75, but during the development of the ROP, it somehow did not get picked up.
Committee Meeting Action: Accept in Principle
Revise section 5.7.1.5 to read as follows:
5.7.1.5 ~~Elevated water tanks that supply suction to fire pumps shall be provided with two automatic fill valves, with separate piping connected to the zone below or to the primary water supply to the building. A manual fill valve shall also be provided.~~ The automatic and manual fill valve combination for each tank or tank compartment shall have it's own connection to one of the following.
A. A standpipe riser that is supplied with a backup fire pump.
B. A reliable domestic riser sized to meet the requirements of 5.7.1.4.
5.7.1.5.1* Each connection shall be made to a different riser.
A.5.7.1.5.1 The different connections should be arranged so that the tank refill rate required in 5.7.1.4 can be maintained even with the failure of any single valve, pipe, or pump.

Committee Statement: Eliminates conflicting language and clarifies intended requirements.

20-44 Log #53 Final Action: Accept in Principle
(5.8 (New))

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Comment on Proposal No: 20-77
Recommendation: Accept proposal 20-77 (Log #7).
Substantiation: This language should be retained in Chapter 5. There may be instances when a building design requires that the pumps in series be in different pump rooms, as approved by the engineer and the AHJ. In those instances, protection of the control wiring should still be required. There's no harm in having this requirement in the standard even if pumps in series are required in the same pump room. This comment is being submitted by the Tyco Codes and Standards Sprinkler Task Group.
Committee Meeting Action: Accept in Principle
Committee Statement: See 20-25 (Log #CC2) that addresses requirements for alarm and signal cable outside of the pump room. The committee did not believe there was a need to apply these requirements to wiring, including power wiring, that is within the protected pump room. Do not accept proposal 20-77.

20-45 Log #20 Final Action: Accept
(8.4 and 8.6 (New))

Submitter: John R. Kovacik, Underwriters Laboratories Inc.
Comment on Proposal No: 20-25
Recommendation: Insert new Section 8.4 and renumber remainder of Chapter 8.

8.4 Water Mist Positive Displacement Pumping Units.

8.4.1 Water mist positive displacement pumping units shall be dedicated to and listed as a unit for fire protection service.

8.4.2 Except as provided in 8.4.3 – 8.4.8, all the requirements of this standard shall apply.

8.4.3 Water mist positive displacement pumping units shall include pumps, driver(s) and controller as a complete operating unit.

8.4.4 The pump controller shall manage the performance of all pumps and drivers to provide continuous and smooth operation without intermittent pump cycling, or discharge pressure varying by more than 10 percent during pump sequencing after rated pressure has been achieved.

8.4.5 Redundancy shall be built in to the units such that failure of a line pressure sensor or primary control board will not prevent the system from functioning as intended.

8.4.6 Where provided with a variable speed control, failure of the variable speed control feature shall cause the controller to bypass and isolate the variable speed control system.

8.4.7 The unit controller shall be arranged so that each pump can be manually operated individually without opening the enclosure door.

8.4.8 The requirement in 10.3.4.3 shall apply to each individual motor and the entire unit.

Revise 8.6 as follows;

8.6* Controllers. See 8.4, Chapters 10 and 12 for requirements for controllers.

Substantiation: This comment was prepared by the NFPA 20 Water Mist Task Group consisting of the following members; John Kovacik (Chair), Underwriters Laboratories; Gayle Pennel, Aon Risk Solutions; John Whitney, Clarke Fire Protection Products; Kerry Bell, Underwriters Laboratories; Hugh Castles, Entergy Services; Terry Victor, Tyco/SimplexGrinnell; Ken Isman, National Fire Sprinkler Association; Tim LaRose, Hughes Associates; Jennifer McGrath, Pentair Water; Wade Montague, Marioff; Zachary Magnone, Tyco/SimplexGrinnell; and Pasi Pennanen, Marioff.

Multiple comments have been submitted which define Water Mist Positive Displacement Pumping Unit and provides the requirements for operation as a single pumping unit. This information is necessary to make certain the sections in the standard are properly correlated and that the Water Mist Positive Displacement Pumping Unit is not in conflict with requirements for centrifugal pumps.
Committee Meeting Action: Accept

20-46 Log #73 Final Action: Reject
(9.1.7)

Submitter: Darrell W. Underwood, Underwood Fire Equipment, Inc.
Comment on Proposal No: 20-86
Recommendation: Delete text as follows:

~~9.1.7 Interruption~~

~~9.1.7.1 No ground fault interruption means shall be installed in any fire pump control or power circuit.~~

~~9.1.7.2 No arc fault interruption means shall be installed in any fire pump control or power circuit.~~

Substantiation: The entire section should be deleted / omitted because the issue is covered by NFPA #70, Section 695 (Fire Pumps). Fault tolerant external or internal will not prevent the controller from starting the fire pump driver. The code is written on what to do, not on what not to do. It would be better for the committee to write a paragraph in the general section of the code stipulating that *"If it is not written in the code, then it cannot be done".*
Committee Meeting Action: Reject
Committee Statement: Arc flash is not covered by NFPA 70, section 695.

20-47 Log #72 Final Action: Reject
(9.1.7 and A.9.1.7)

Submitter: Darrell W. Underwood, Underwood Fire Equipment, Inc.
Comment on Proposal No: 20-87
Recommendation: Delete text as follows:
~~A.9.1.7 Ground fault alarm provisions are not prohibited.~~
Substantiation: The entire section should be deleted / omitted because the issue is covered by NFPA #70, Section 695 (Fire Pumps). Fault tolerant external or internal will not prevent the controller from starting the fire pump driver. The code is written on what to do, not on what not to do. It would be better for the committee to write a paragraph in the general section of the code stipulating that *"If it is not written in the code, then it cannot be done"*.
Committee Meeting Action: Reject
Committee Statement: Arc flash is not covered by NFPA 70, section 695.

20-48 Log #125 Final Action: Accept
(9.2.3.4)

Submitter: James S. Nasby, Skokie, IL
Comment on Proposal No: 20-90
Recommendation: Add "all of" before "the other pump motors to read:
9.2.3.4 Where the overcurrent . . . and the full-load current of <u>all of</u> the other pump motors
Substantiation: This to clarify the required sizing of the subject overcurrent protection and eliminate any ambiguity.
Committee Meeting Action: Accept

20-49 Log #116 Final Action: Reject
(9.2.3.4, 10.4.4, and 10.8.2.2)

Submitter: James S. Nasby, Skokie, IL
Comment on Proposal No: 20-91
Recommendation: Change 3 minutes to <u>30</u> minutes.
Substantiation: The purpose of the 300% is to allow single phase running of a running fire pump. 3 minutes does little good in this regard. 30 minutes allows time for possible manual intervention or fire department change in tactics. This is not hard to test for since the trip element, itself, may be tested for this characteristic if acceptable to the listing & approval agencies.
Committee Meeting Action: Reject
Committee Statement: The time has already been increased from 3 min to 10 min. The committee feels 10 min is adequate. See Committee Action on ROP 20-92 (Log #127)

20-50 Log #117 Final Action: Reject
(9.2.3.4.1)

Submitter: James S. Nasby, Skokie, IL
Comment on Proposal No: 20-92
Recommendation: Change 3 minutes to 30 minutes.
Substantiation: The purpose of the 300% is to allow single phase running of a running fire pump. 3 minutes does little good in this regard. 30 minutes allows time for possible manual intervention or fire department change in tactics. This is not hard to test for since the trip element, itself, may be tested for this characteristic if acceptable to the listing & approval agencies.
Committee Meeting Action: Reject
Committee Statement: The time has already been increased from 3 min to 10 min. The committee feels 10 min is adequate. See Committee Action on ROP 20-92 (Log #127).

20-51 Log #CC5 Final Action: Accept
(9.2.3.4.1)

Submitter: Technical Committee on Fire Pumps,
Comment on Proposal No: 20-92
Recommendation: Revise text in proposal 20-92:
9.2.3.4.1 Alternately, compliance with 9.2.3.4 shall be based on an assembly listed for fire pump service complying with the following:
1. The ~~No trip~~ overcurrent protection device shall not open within 2 minutes at 600% full load current.
2. The ~~No trip~~ overcurrent protection device shall not open with a re-start transient of 24 times the full load current.
3. The ~~No trip~~ overcurrent protection device shall not open within 10 minutes at 300% full load current.
4. The trip point for circuit breakers shall not be field adjustable.

Substantiation: The change will address the performance of both circuit breakers and fuses.
Committee Meeting Action: Accept

20-52 Log #36 Final Action: Accept
(9.3.1)

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.
Comment on Proposal No: 20-93
Recommendation: Reject Proposal 20-93.
Substantiation: This proposal has the effect of requiring a back-up power supply on almost every electric motor driven fire pump on almost every sprinkler system. The FDC on a sprinkler system is not intended to be sufficient to achieve the flow demand of the sprinkler system. Two inlets of 2-1/2 inches each will not allow the same flow as a 6 or 8 inch riser. In smaller sprinkler systems, while the flow might get through the 2-1/2 inch connections, the run of 4 inch pipe that leads to the riser (often long due to placement requirements of the fire department) won't allow the water to reach the sprinklers at the pressure demand of the system.

The FDC is intended to be an auxiliary device to augment a water supply, not a stand alone water supply. In buildings where sprinkler systems are only installed for property protection or for safe evacuation of occupants prior to fire department arrival, a secondary power supply for the fire pump is not warranted based on fire department capabilities.

This decision should be left to the engineer of record in consultation with the building owner and should not be regulated by the standard.

This was agreed to at the April 2011 meeting of the E&S Committee.
Committee Meeting Action: Accept

20-53 Log #90 Final Action: Accept
(9.3.1)

Submitter: Russell B. Leavitt, Telgian Corporation
Comment on Proposal No: 20-93
Recommendation: Reject the accepted revision and leave language as is in 2010 edition.
Substantiation: This proposed change goes beyond the specific intent of the current language which is limited to high-rise structures. High-rise structures are unique in their life safety challenges where it is anticipated that fires will be attacked with occupants in place particularly for fires occurring 500 ft above fire department access and that fire fighters will rely solely on the building systems for essentially any fire 300 ft above fire department access. The same is not the case with fires occurring at grade or within accessible heights above grade. For example, NFPA 13 clearly states that it is not the intent for the fire department to deliver the system demand through the FDC but to “supplement” the water supply (A.6.8.1). The proposed change to 9.3.1 goes beyond the requirement of the installation standard. This revision may be in conflict with other installation standards and should not be enacted until it is coordinated with the impacted standards.
Committee Meeting Action: Accept

20-54 Log #106 Final Action: Reject
(9.3.1, 9.3.2, A.9.3.1, and A.9.3.2(2))

Submitter: Michael A. Anthony, University of Michigan / Rep. APPA.ORG - Leadership in Education/Association of Education Facility Executives
Comment on Proposal No: 20-94
Recommendation: Remove all of the annex material proposed for 9.3.1* Primary Power Source Reliability
The technical correlating committee of this document should present this content, or updated content with the same intent, to the technical correlating committee of NFPA 110 for consideration in the 2016 revision of NFPA 110. (See related comment regarding revision of the mandatory language for the additional text proposed in A9.3.1.1)
Substantiation: Decisions about the reliability and availability of primary power sources of power can be a significant driver in getting the scope of NFPA 110 expanded to meet the needs of the users of NFPA 20. NFPA 110 is a natural place for data about the last mile of distribution that is the main source of primary power to the fire pumps covered in NFPA 20.
Scope expansion of emergency and standby power sources to include utility sources of power was presented to the NFPA 110 committee during the present revision cycle but was rejected in the proposal stage as shown below. Note that the editorial tactic deployed in the NFPA 110 ROP was to strike a single statement from the scope statement in order to accomplish the purpose of expanding the scope of NFPA 110 into the consideration of the reliability of utility sources of power. Hopefully the strikethrough of the text of 1.1.3(4) -- ~~"Utility service when such service is permitted as the EPSS"~~ will appear correctly in the typeset of the ROC of NFPA 20.
I have participated in the development of the 2012 National Electrical Safety Code and, knowing what I also know about NFPA document development, I do not see meaningful gestures in reckoning with the dynamics necessary for getting the last mile of distribution reconfigured to meet the needs of the US economy -- particularly in the distributed resource milieu. (This may be a consequence of the NESC's own scope limitation) Regardless, the last mile of power distribution -- one step above the building premises wiring covered in the NEC-- needs a broader discussion. State and local public utility commissions need it. The NFPA standards-making platform is the best we have for getting tough ideas discussed and presented to policy-makers and project financiers.
Note: Supporting material is available for review at NFPA Headquarters.
Committee Meeting Action: Reject
Committee Statement: Cannot delete language in Proposal 20-94 because it was never accepted.
NFPA Standards Council has routinely determined that the arrangement of the power supply to a fire pump is within the scope of this Committee, not the NFPA 110 Committee. And, this Committee does not need to submit a Proposal/Comment to NFPA 110 in order for the NFPA 110 Committee to abstract the NFPA 20 material.

20-55 Log #10 Final Action: Accept
(9.4.4)

Submitter: Richard Schneider, Lancaster, SC
Comment on Proposal No: 20-96
Recommendation: New text to read as follows:
The voltage at the contactor(s) load terminals to which the motor is connected shall not drop more than 5 percent below the voltage rating of the motor when the motor is operating at 115 percent of the full-load current rating of the motor: Wiring from the controller(s) to the pump motor shall be in rigid metal conduit, intermediate metal conduit, electrical metallic tubing, liquidtight flexible metal conduit, or liquidtight flexible nonmetallic conduit Type LFNC-B, listed Type MC cable with an impervious covering, or Type MI cable. Electrical connections at motor terminal boxes shall be made with a listed means of connection. Twist-on, insulation-piercing type and soldered wire connectors shall not be permitted to be used for this purpose.
Substantiation: This harmonizes with Paragraph 13.5.9.2, NFPA 79. Wire Nuts have been troublesome in the vibration environment of a running motor connection box. Additionally, as a matter of safety, testing for the 5 percent maximum voltage drop @ the motor when running @ it's SF is potentially dangerous and thus is being ignored. The voltage drop in properly sized (@ 125 percent MFLC) conductors between the load terminals of the contactor(s) and the motor is negligible. A similar proposal to NEC 695.6D has been tendered.
Committee Meeting Action: Accept

20-56 Log #74 Final Action: Accept in Principle
(9.4.4)

Submitter: Darrell W. Underwood, Underwood Fire Equipment, Inc.
Comment on Proposal No: 20-96
Recommendation: Revise text as follows:
The voltage at the motor starter output terminals shall not drop more than 5 percent below the voltage rating of the motor when the motor is operating at 115 percent of the full-load current rating of the motor. The voltage at the motor starter output terminals shall not drop.
Substantiation: After checking with the voltmeter manufacturers, non-contact voltmeters are not accurate. If this does not require disconnecting the motor, then please advise how (if) it can be done.
Committee Meeting Action: Accept in Principle
Committee Statement: See committee action on Comment 20-55 (Log#10).

20-57 Log #61 Final Action: Accept in Principle
(9.9.5)

Submitter: James S. Nasby, Skokie, IL
Comment on Proposal No: 20-104
Recommendation: Accept Proposal 20-104, except I'll submit the TIA to NFPA-70.
Substantiation: In rejecting my Proposal 20-104, the Committee stated that "Fault circuits are different for fire pumps." This is the exact reason for my proposal and this comment. NFPA-70 Article 695 accepted a proposal to add thin wall (EMT) conduit. EMT is suitable for normal branch circuits; but, not for fire pump circuits since these circuits must hold 300% forever downstream of the controller, 600% upstream, are often service entrance and are almost always high fault sources.
Committee Meeting Action: Accept in Principle
Add new section 9.9.5 to read as follows:
9.9.5 Where the raceway (conduit) between the controller and motor is not capable of conducting ground fault current sufficient to trip the circuit breaker when a ground fault occurs, a separate equipment grounding conductor shall be installed between the controller and motor.
Committee Statement: Revised the wording to be more performance oriented.

20-58 Log #75 Final Action: Reject
(10.3.1.1 and A.10.3.1.1)

Submitter: Darrell W. Underwood, Underwood Fire Equipment, Inc.
Comment on Proposal No: 20-106
Recommendation: Delete text as follows:
~~10.3.1.1 No ground fault protection (tripping) shall be allowed.~~
~~A.10.3.1.1 Ground fault alarm provisions are not prohibited.~~
~~10.4.5.8 No ground fault protection (tripping) should be allowed. A ground fault alarm shall be permitted.~~
Substantiation: The entire section should be deleted / omitted because the issue is covered by NFPA #70, Section 700.7.D.
Committee Meeting Action: Reject
Committee Statement: Section 10.3.1.1 text was rejected in ROP action. NFPA 70 Reference is incorrect.

20-59 Log #76 Final Action: Reject
(10.4.3.3.1(7) and A.10.4.3.3.1(7))

Submitter: Darrell W. Underwood, Underwood Fire Equipment, Inc.
Comment on Proposal No: 20-109
Recommendation: Delete text as follows:
~~The circuit breaker shall not trip when starting a motor from rest in the Across-the-Line (Direct-On-Line) mode, whether or not the controller is of the reduced inrush starting type.~~
~~A.10.4.3.3.1(7) The Isolating Switch is not allowed to trip either. See also 10.4.2.1.3.~~
Substantiation: The entire section should be deleted / omitted because the issue should be done by an approval agency under UL 218 and/or FM 1321/1323. An approval agency has the proper equipment in a laboratory setting to check out these settings. Fire pump control panels carry a label for fire protection and should be built as such.
Committee Meeting Action: Reject
Committee Statement: Variables in field conditions preclude testing in a lab setting.

20-60 Log #77 Final Action: Reject
(10.4.3.3.1(7) and A.10.4.3.3.1(7))

Submitter: Darrell W. Underwood, Underwood Fire Equipment, Inc.
Comment on Proposal No: 20-109
Recommendation: Delete text as follows:
~~The circuit breaker shall not trip when starting a motor from rest in the Across-the-Line (Direct-On-Line) mode, whether or not the controller is of the reduced inrush starting type.~~
~~A.10.4.3.3.1(7) The Isolating Switch is not allowed to trip either. See also 10.4.2.1.3.~~
Substantiation: The entire section should be deleted / omitted because the issue should be done by an approval agency under UL 218 and/or FM 1321/1323. An approval agency has the proper equipment in a laboratory setting to check out these settings. Fire pump control panels carry a label for fire protection and should be built as such.
Committee Meeting Action: Reject
Committee Statement: Variables in field conditions preclude testing in a lab setting.

20-61 Log #12 Final Action: Reject
(10.5.2.1.1.1)

Submitter: Daniel Gendebien, TORNATECH
Comment on Proposal No: 20-114
Recommendation: Add new text to read as follows:
10.5.2.1.1.1 There shall be provided two pressure-actuated switches or electronic pressure sensors having adjustable high-and low-calibrated set-points as part of the controller.
10.5.2.1.1.4 Those switches or pressure sensors shall be responsive to water pressure in the fire protection system.
10.5.2.1.7.1 Pressure Switch Actuation. Any of the two pressure sensing element actuation at the low adjustment setting shall initiate pump starting sequence (if pump is not already in operation).
Substantiation: The proposal was rejected with this substantiation. "Transducers are not inherently unreliable." November the 24th 2010, all customer of a very reliable pressure transducer company admitted a problem with the production of pressure transducer. (see annex). More than 1000 transducers are now on the field with a potential problem. Even the transducers are not inherently unreliable, it could fail anytime during the life time, and is subject to quality issue.
Committee Meeting Action: Reject
Committee Statement: Adds unnecessary redundancy. Periodic testing in accordance with NFPA 25 should identify problems.

20-62 Log #62 Final Action: Reject
(10.5.2.1.1.2 and A.10.5.2.1.1.2)

Submitter: James S. Nasby, Skokie, IL
Comment on Proposal No: 20-115
Recommendation: Accept Proposal 20-115.
Substantiation: Numerous pressure transducer failures have been already detected and repaired in the field. There has also been a massive recall of transducers from what was the major supplier which involves many hundreds of diesel and electric motor drive controllers.
Note that this is can be easily met by detecting a transducer output signal over-range or under-range.
Committee Meeting Action: Reject
Committee Statement: Periodic testing in accordance with NFPA 25 should identify problems.

20-63 Log #119 Final Action: Reject
(10.5.2.1.1.3 and A.10.5.2.1.1.3)

Submitter: James S. Nasby, Skokie, IL
Comment on Proposal No: 20-115
Recommendation: Accept P20-115 but add a new sentence to read:
A separate pressure switch, independent of all transducer circuitry and power supply shall be an acceptable means to accomplish the intent of 10.5.2.1.1.2.
A.5.2.1.1.3 A separate pressure switch is not required to be of the close differential or adjustable differential type.
Renumber extant 5.2.1.1.2 & etc.
Substantiation: To provide another means of overcoming pressure transducer faults or drifting. Reference is made to Proposals P20-114 and P20-116.
Committee Meeting Action: Reject
Committee Statement: Periodic testing in accordance with NFPA 25 should identify problems.

20-64 Log #120 Final Action: Accept in Principle
(10.5.3.2.1.3 and 10.5.3.2.3)

Submitter: James S. Nasby, Skokie, IL
Comment on Proposal No: 20-119
Recommendation: Add new sentence to read:
The operating handle shall be marked or labeled as to it's function and, if necessary, it's operation.
Substantiation: Some controllers in the field have no marking as to what the manual operator handle is or how to use it. Reference is made to clause 10.4.3.2(3); however, $^{3}/_{8}$" size lettering would not be practical.
Committee Meeting Action: Accept in Principle
Add new section 10.5.3.2.4 to read as follows:
10.5.3.2.4 The operating handle shall be marked or labeled as to function and operation.
Committee Statement: Editorial changes for clarity.

20-65 Log #1 Final Action: Accept in Principle
(10.7)

Submitter: Tony Kranendonk, Eaton Electrical/Cutler Hammer
Comment on Proposal No: 20-120
Recommendation: Revise text to read as follows:
10.7.2.2 In lieu of 10.1.2.5.1 each controller shall be marked “Limited Service Controller” and shall show plainly the name of the manufacturer, the identifying designation, maximum operating pressure, enclosure type designation, and the complete electrical rating.
10.7.2.4 The manually operated isolating switch specified in 10.4.2 shall not be required when the disconnecting means permitted by 9.2.3 is provided.
Substantiation: Paragraph 10.7.2.1 allows the fire pump motor to burnout in the field under locked rotor conditions, including those of single phasing. When this occurs, the fire pump has failed completely with no chance of manual intervention.
This is all caused by the inappropriate use of the thermal magnetic circuit breaker in paragraph 10.7.2.1 that allows the locked rotor tripping time to be as high as 200 seconds. This is ten times that allowed on a full service fire pump controller. As a result, the motor will either fail open without ever tripping the circuit breaker or fail to ground causing the circuit breaker to trip. In either case, when this happens it is widely assumed that “the motor was bad” not knowing the real cause of the motor failure was the circuit breaker tripping characteristics and lack of locked rotor overcurrent protection in the limited service controller. Thermal magnetic circuit breakers are not designed nor intended for motor protection.
Further, paragraph 10.7.2.1 allows the circuit breaker to take up to 2 minutes to cool down before a reset can occur after a locked rotor trip. The full service fire pump controller resets instantly. Since emergency personnel probably don’t know this, they may try to break free the fire pump but find the circuit breaker will not reset. Would emergency personnel wait 2 minutes and try again or abandon this effort assuming there is no hope in trying to start the fire pump?
The deletion of paragraph 10.7.2.1 corrects all of the above problems.
The revision to paragraph 10.7.2.2 adds the requirement to mark the maximum operating pressure and enclosure Type on the controller nameplate. This is vital application information that already exists on full service fire pump controllers.
The revision to paragraph 10.7.2.4 adds the requirement to provide an upstream disconnect switch so protected service of the circuit breaker can occur.
Committee Meeting Action: Accept in Principle
Committee Statement: See committee action on 20-76 (Log #CC1).

20-66 Log #5 Final Action: Accept in Principle
(10.7)

Submitter: Manuel J. DeLerno, Geneva, IL
Comment on Proposal No: 20-120
Recommendation: Delete proposal 20-120 in its entirety.
Substantiation: By reference, I make my comments presented on the floor of the Technical Session of the Annual Meeting in Chicago in June 2009 on an identical proposal for NFPA 20 - 2010 a part of this public comment.

The "better served" position is not substantiation, it is an observation. The Annex to the Standard is not a part of the Standard. In fact, I consider both statements "self-serving" rather than statements in support of a "minimum standard", which all NFPA Standards are mandated to be.

What does the statement "Failures of limited service controllers are difficult to document as typically the electric motor is destroyed with no damage to the controller" mean to convey? Typically? Clarification is essential to an understanding of this statement.

It seems to me that the real difficulty is the unwillingness of those who are in a position to quantify their knowledge of these failures to come forward with this information. I am referring to committee members, in particular.

Lastly, I understand that a Task Group has been appointed to secure and document the failure history of the limited service controller. This is laudable, but in my opinion too late for support to use in this revision cycle.

EXCERPT FROM

Floor Action on Certified Amending Motions on Documents for the June 2009 Association Technical Meeting

MODERATOR GERDES: Thank you. Microphone 3 in the back.

MR. DeLERNO: Manny DeLerno of St. Charles, Illinois, and I rise to speak in support of the motion on the floor. I am also the submitter of companion NITMAM Log Number 459, Motion Sequence 20-4 resulting from my Public Comment 20-67 appearing on Page 20-17.

As a former long time member of the NFPA 20 Fire Pump Committee, I wish to call to your attention that a similar committee recommendation to remove the limited service controller from NFPA 20 was rejected at the Association Annual Meeting in Denver, Colorado, a number of years ago. At that time, I, as the representative of the Illinois Fire Prevention Association, an organizational member, made the motion to reject this recommendation.

At the present time, I speak as a retiree. Nevertheless, with the support of the Illinois Fire Prevention Association secured at their meeting on April 14, 2009, at which time they authorized me to make this statement of support of my position.

The committee's rejection of my public comment appears on page 20-16 as the public comment of Dick Schneider of Joslyn Clark Controls, the NEMA principal representative on the NFPA 20 committee. Now to my response to statements appearing in the committee response to my public comment which incidentally was summarized by Dick Schneider just now.

Number one, the opening sentence about 50 horsepower minimum rating is misleading. The controllers at that time were used on lower motor horsepowers by substituting circuit breaker trip elements calibrated to the lower horsepowers full load currents, the components still having 50 horsepower ratings. This misconception seems to be intimated further with the statement, "In granting this permission, the committee recognized, one, in many instances, the user's choice was the LSC or nothing."

Two, the matter of the limitations of the LSC circuit breaker as the issue was rejected in Denver. John Kovacik, UL, Incorporated, as a committee member in his abstention vote says that UL will continue to list these controllers until they are no longer recognized by NFPA 20.

Three, the removal of approval by Factory Mutual is rebutted by R. Leicht's authority having jurisdiction committee member in his negative vote on Public Comment 20-66, Log Number 68 as follows: "Just because FM does not need to recognize them, that is a business decision on their part. They are not the only insurer nor are they the only AHJ."

Note further that the Factory Mutual's representative on the committee elected not to further clarify their position in this matter which he could have done as a comment to his affirmative vote.

Number four, in Mr. Leicht's negative comment just cited, he rejects the rationale that the information provided in magazines by the fire pump controller industry is justification for taking the decision away from the authority having jurisdiction as to the suitability for use of a limited service controller.

Number five, the remainder of the rationale is fluff sprinkled with some fiction. As a professional electrical engineer now in retirement with no financial interest in the outcome, I believe that the economic issues, some of which are unstated, far outweigh the fire protection issues involved.

I challenge the committee to state why after 50 plus years the limited service controller is no longer a minimum

acceptable product as currently prescribed in NFPA 20. Thank you.
Committee Meeting Action: Accept in Principle
Committee Statement: See Committee action on 20-76 (Log #CC1).

20-67 Log #6 Final Action: Accept in Principle
(10.7)

Submitter: Vincent Rodriguez, Apex Pumping Equipment, Inc.
Comment on Proposal No: 20-120
Recommendation: Delete the following text:
Delete proposal. Limited Service controller is to remain in NFPA 20 as written in 2010 edition.
Substantiation: There is no substantial evidence not already presented for the rejected identical proposal for NFPA 20-2010 edition.
Committee Meeting Action: Accept in Principle
Committee Statement: See Committee action on 20-76 (Log #CC1).

20-68 Log #7 Final Action: Accept in Principle
(10.7)

Submitter: David R. Hague, Liberty Mutual Commercial Markets
Comment on Proposal No: 20-120
Recommendation: Reject the proposal.
Substantiation: There were no public proposals submitted to discontinue the use of limited service controllers and there have not been any known issues with them. Therefore, there is no reason to discontinue their use.
Committee Meeting Action: Accept in Principle
Committee Statement: See Committee action on 20-76 (Log #CC1).

20-69 Log #9 Final Action: Accept in Principle
(10.7)

Submitter: Richard M. Ray, Cybor Fire Protection Company
Comment on Proposal No: 20-120
Recommendation: Do NOT delete Section 10.7, Limited Service Controllers.
Substantiation: There is NO valid reason for eliminating limited service controllers (LSC). Those who propose to eliminate them have offered not one bit of evidence or data of LSCs failing. The company that I work for performs annual as well as periodic churn tests on over 750 fire pumps each year and has been doing such for 15 plus years and we have found NO increase in the failure rate of motors or controllers when a LSC is involved. Where is the data that these LSCs are a problem!? And, the fact that FM no longer approves these devices is completely immaterial. Consider that there are upright style ESFR sprinkler heads that are FM approved but NOT UL listed and there are extended coverage concealed sprinkler heads that are UL listed but NOT FM approved as well as standard coverage concealed sprinkler heads that are UL listed as quick response but only approved as standard response by FM - if we follow the NFPA 20 Committee's reasoning, then ALL of these sprinklers should be eliminated - that of course is preposterous! Also, though the economic advantage of utilizing a LSC has shrunk in the past few years (which I always thought was strange and unjustified), LSCs still offer a more economical solution to insuring that fire sprinklers be included in many mid or low rise residential type occupancies where, by the way, the overwhelming majority of fire related deaths and injuries occur each year in the U.S. As a contractor I can promise you that every dollar counts when the developer wants to cry to the municipality that he "can't afford" to install sprinklers in his new building - and when they are successful in eliminating the sprinklers, the fire service is left with the problem - and for years to come. This proposal should have been rejected by the Committee as it has been by the majority of the NFPA membership every time these manufacturers have tried to eliminate LSCs in the past years. I wonder if the controller manufacturers' hidden agenda is to sell a Cadillac when a Ford will perform just as well...As they say "it's never about money until it's about money".
Committee Meeting Action: Accept in Principle
Committee Statement: See Committee action on 20-76 (Log #CC1).

20-70 Log #11 Final Action: Accept in Principle
(10.7)

Submitter: James T. Reap, United States Alliance Fire Protection
Comment on Proposal No: 20-120
Recommendation: Revise text to read as follows:
Retain section 10.7, Limited Service Controllers
Substantiation: These controllers work adequately for their application. Requiring across the line controllers in all instances is economically unjustified.
Committee Meeting Action: Accept in Principle
Committee Statement: See Committee action on 20-76 (Log #CC1).

20-71 Log #37 Final Action: Accept in Principle
(10.7)

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.
Comment on Proposal No: 20-120
Recommendation: Reject Proposal 20-120.
Substantiation: The need for limited service controllers still exists. Contractors and designers use limited service controllers for many applications where full service controllers cost too much and the difference in price makes the difference between getting a fire protection system or not. Quite simply stated, a limited service controller on a fire pump that meets NFPA 20 that supplies a sprinkler system in accordance with NFPA 13 is much better in a building than no fire pump and no sprinkler system.

In many rural areas, the only way to sprinkler small business and retail occupancies is with a small fire pump. In these locations, a limited service controller seriously saves the building owner and is enough to help them decide in favor of fire protection.

With over 60 years of use, the limited service controller has proven to be an acceptable quality device. No data has ever been submitted, despite repeated requests over a period of more than 10 years, that justifies the elimination of this type of device.

The Fire Pump Committee has voted a number of times to eliminate the limited service controller, and each time, the NFPA membership has said “no.” The membership clearly wants the ability to use these devices. Why does the Committee continue to go against the membership of the organization that it supposedly represents?
Committee Meeting Action: Accept in Principle
Committee Statement: See Committee action on 20-76 (Log #CC1).

20-72 Log #46 Final Action: Reject
(10.7)

Submitter: Richard Schneider, Lancaster, SC
Comment on Proposal No: 20-120
Recommendation: This Comment is in SUPPORT of the Committee Action.
Substantiation: This Comment is in SUPPORT of the Panel action on Proposal 20-120, (Log #CP14) pertaining to 10.7 and is being written BEFORE the Limited Service Controller Task Group has met & made its recommendations.

The Fire Pump Controller (FPC) industry has pointed out repeatedly that the Limited Service Controller's existence was and is based purely on economics at the cost of some defined Inferior (limited) performance. It Is a product created by a long ago NFPA 20 panel to satisfy a genuine need that no longer exists. In those days (>5 decades ago) the minimum ratings of fire pump controls was 50Hp and now all FPC manufacturers make controllers down to 5Hp. This current NFPA 20 panel has (3 times) proactively recommended the deletion of 10.7, a decision supported by all North American manufacturers of FPC's in the interest of better fire protection. NFPA 20 never graced the LSC as a FPC. There is an old saying which is: "Reactive standards are based on body count whereas Proactive standards are based on professionalism, knowledge and experience"

Objectors to the deletion of 10.7 are recognized experts in areas other than fire pump controllers and seem to be motivated by economic gain rather than maximizing protection of life & property.

Probably >99% of fire pump & LSC installations are never called upon to actually put out a fire, but when they are, they MUST WORK! -- and that is where the "rubber hits the road". The virtues of the FPC vs. the "limitations" of the LSC are under fire conditions and NOT during standby nor test conditions because the LSC contains thermally-reactive components whereas the FPC does not. I would not want to be the guy trying to reset a tripped thermal magnetic breaker when the building is on fire and his rear end gets singed. Using NON-thermally-reactive breakers and immediate reset capability in FPC sets our industry apart from plain vanilla industrial controls.

In my opinion, the '20 committee has been misguided to come up with documentation of LSC failures under standby and/or test conditions. These data do not show inferior performance under fire conditions nor anomalies such as single phasing. The panel has enough expertise and professional knowledge to define the limitations and thus be pro-active in its actions. (It already has 3 times).

History is full of similar Instances where a product was claimed to be "just as good as the traditional products" (the Yugo, the Henry J and Edsel come to mind) where the market finally dealt it a death blow. In the case of the LSC, Factory Mutual and the user public have already reacted similarly and the deletion of 10.7 from NFPA 20 (2013) should put this topic to rest -- and let the '20 Panel claim assurance that it did the right thing.

Committee Meeting Action: Reject
Committee Statement: The committee has proposed new provisions concerning limited service controllers for this application as indicated in 20-76 (Log #CC1). Therefore 10.7 will be retained and modified.

20-73 Log #54 Final Action: Accept in Principle
(10.7)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Comment on Proposal No: 20-120
Recommendation: Reject proposal 20-120 (Log #CP14).
Substantiation: The alleged high failure rate of limited service controllers will be investigated in the current Fire Protection Research Foundation project titled Fire Pump Field Data Collection and Analysis. One of the stated goals of the FPRF project is to: “Facilitate early identification of currently unknown or inadequately defined issues including (but not limited to): Limited service controller reliability”. Until the data collection is complete and a recommendation is made by the project panel and consultant, the issue of whether to prohibit the use of limited service controllers should not be considered by the NFPA 20 technical committee. This comment is being submitted by the Tyco Codes and Standards Sprinkler Task Group.
Committee Meeting Action: Accept in Principle
Committee Statement: See Committee action on 20-76 (Log #CC1).

20-74 Log #107 Final Action: Accept in Principle
(10.7)

Submitter: Brian G. Conway, Great Lakes Plumbing & Heating Company
Comment on Proposal No: 20-120
Recommendation: Do NOT DELETE Section 10.7, Limited Service Controllers.
Substantiation: The committee's substantiation is without merit. The fact that Full Service Controllers can serve the same horsepowers and voltages that Limited Service Controllers serve and whether FM's Approval Guide includes Limited Service Controllers are both irrelevant. Without evidence that the motors served by Limited Service Controllers have failed, especially given the number of Limited Service Controllers that have been in service for long periods, there is no basis for not allowing their continued.
Committee Meeting Action: Accept in Principle
Committee Statement: See Committee action on 20-76 (Log #CC1).

20-75 Log #123 Final Action: Accept in Principle
(10.7)

Submitter: John Chartier, Northeastern Regional Fire Code Development
Comment on Proposal No: 20-120
Recommendation: Reverse the TC action on 10.7 - Limited Service Controllers. Restore text to language of the current edition.
Substantiation: No documentation of a problem has been submitted by the proponents.
The rationale that Factory Mutual chooses to no longer list these devices does not mean that the NFPA needs to stop recognizing it. There are other listing agencies other than FM. UL still has a listing category for this product. There are many products that are addressed in NFPA standards that are not necessarily evaluated by Factory Mutual.
This same action has been proposed in the previous two cycles including public comments and the testimony on the floor of the NFPA membership and yet, in the end, both times, the action to eliminate Limited Service Controllers has been rejected.
Limited Service Controllers provide additional viable options for some fire protection needs. Additionally, it is the prerogative of the AHJ to determine if such hardware is approved or not in his jurisdiction. By eliminating this hardware from the Standard, the Committee would be circumventing the AHJ's authority to make this decision.
Committee Meeting Action: Accept in Principle
Committee Statement: See Committee action on 20-76 (Log #CC1).

20-76 Log #CC1 Final Action: Accept
(10.7)

Submitter: Technical Committee on Fire Pumps,
Comment on Proposal No: 20-120
Recommendation: Reject proposal 20-120 in the ROP and maintain section 10.7.

Delete paragraph 10.7.2.1 in its entirety. Renumber existing sections accordingly including paragraph references in 10.7.2.

Revise paragraph 10.7.2.2 to read as follows:

"In lieu of 10.1.2.5.1, each controller shall be marked "Limited Service Controller", and shall show plainly the name of the manufacturer, the identifying designation, maximum operating pressure, the enclosure type designation, and the complete electrical rating."

Substantiation: The effect of this recommendation for limited service controllers is to prohibit the use of thermal type overcurrent sensing devices and to require locked rotor overcurrent protection. Thermal magnetic circuit breakers are not designed nor intended for motor protection.

These recommendations provide for the necessary protection of fire pump motors. Field conditions may result in fire pumps that are bound or frozen. Attempting to start these pumps can result in a locked rotor condition that will destroy the motor without the overcurrent protection proposed and compromise overall fire protection. A typical thermal magnetic breaker can take up to 200 seconds to trip under locked rotor conditions. The threshold for winding insulation on motors is 12 seconds before damage occurs under locked rotor conditions in accordance with NEMA MG-1, Section 12.49. The new marking provisions for limited service controllers will help in the application of the equipment in the field and facilitate enforcement.

Committee Meeting Action: Accept

20-77 Log #17 Final Action: Accept in Principle
(10.7.2.1)

Submitter: William F. Stelter, Master Control Systems, Inc.
Comment on Proposal No: 20-120
Recommendation: Delete paragraph 10.7.2.1.
Substantiation: Designing motor protection for any motor starter, including a fire pump controller is related to the following field conditions. It's not a statistical question since every job is susceptible to the following electrical conditions:

1) Short circuit
2) Overload (including Locked Rotor)
3) Single phase

Full Service and Limited Service controllers differ when it comes to Locked rotor and Single Phase conditions.

Motor loading at stall is approximately 600 percent of the rated motor current. This is called "Locked Rotor Current". This current occurs every time an across-the-line motor is started for about 1 second. If during starting, the motor does not turn or is frozen, the current remains at 600 percent of rated motor current until the circuit breaker trips or the motor burns out. On Full Service controllers, the circuit breaker will trip between 8 and 20 seconds in accordance with NFPA 20, paragraph 10.4.4(a).

10.4.4 Locked Rotor Overcurrent Protection. The only other overcurrent protective device that shall be required and permitted between the isolating switch and the fire pump motor shall be located within the fire pump controller and shall possess the following characteristics:

(1) For a squirrel-cage or wound-rotor induction motor, the device shall be as follows:
(a) Of the time-delay type having a tripping time between 8 seconds and 20 seconds at locked rotor current.
(b) Calibrated and set at a minimum of 300 percent of motor full-load current

Paragraph (a) indicates the maximum time allowed for the motor to survive a severe start without burning out due to overheating.

On Limited Service controllers, paragraph 10.4.4 does not apply so there is no locked rotor stall time required. Since it is not required, the tripping time is determined by the thermal magnet circuit breaker trip curve. See NFPA paragraph 10.7.2.1

10.7.2.1 In lieu of 10.4.3.3.1(2) and 10.4.4, the locked rotor overcurrent protection shall be permitted to be achieved by using an inverse time nonadjustable circuit breaker having a standard rating between 150 percent and 250 percent of the motor full-load current.

Thermal magnetic breaker trip times are designed to protect cables and not motors, so the locked rotor stall time can be quite long. The electrical industry relies on an overload relay to protect the motor, but NFPA 20 does not allow its use with a fire pump controller, so depending on the circuit breaker sizing, as well as the manufacture's design and tolerance, the locked rotor trip time can take up to 120 seconds. Since the motor will only survive 12 seconds (per NEMA MG-1) without damage, it's easy to see why motor damage occurs.

Single Phase Condition – On a three phase motor applications, this is the condition that occurs when one of the three power lines to the controller is opened. Typically, this occurs in the power grid ahead of the fire pump controller and is usually caused by a lightning strike that takes one of the line phases to ground. When this happens, one of the three phase fuses in the power system opens, thus leaving the controller and motor in a Single Phase condition. This is a common occurrence and has even occurred at Master Control Systems' facility while we were present. Whether the motor burns out or not is dependant on whether a start demand occurs; but really, this is just a matter of time.

If a single phase condition occurs but a start signal is not received, the motor won't start so the motor won't be damaged. However, if the jockey pump controller tries to starts under the single phase condition, the overload relay in the jockey pump controller will trip out in a few seconds and prevent the jockey pump from starting again. Next, the fire pump controller will attempt to start due to the low system pressure. Again motor damage may result depending on breaker sizing, as well as the manufacturer's design and tolerance.

Under single phase motor starting conditions, the motor will draw approximately locked rotor currents since the motor can't spin as a result of the missing phase. The locked rotor current condition will not change until three phase power returns. Under this condition, the breaker of a Full Service controller will trip in 8-20 seconds in accordance with paragraph 10.4.4(a), but the breaker on the Limited Service controller can take up to 120 seconds to trip. If the actual stall time exceeds 12 seconds, the Limited Service motor will burn out.

Cost of fixing the Limited Service circuit breaker

Years ago the cost to fix the circuit breaker problems with the Limited Service controller was in the thousands of

dollars. This was due to the older circuit breaker and controller technology of the day, but today with use of shunt trips and instantaneous molded case circuit breakers, the cost difference is virtually nothing. Our cost difference between a 100 amp thermal magnetic circuit breaker and a 100 amp instantaneous circuit breaker with a shunt trip is about $50 to $100…hardly worth loosing life or property over.

Conclusion

Electrical engineers must always consider how motor controllers perform under short circuit, overload, and single phase conditions since they will always occur in the field. The question for NFPA 20 is what should be done when a frozen pump or single phase condition is encountered on a Limited Service controller? NFPA 20 covers all these requirements for Full Service controllers but leaves these questions unanswered for the Limited Service controllers. It is time for NFPA 20 to answer these questions so it is not left to up to a wide variation of breaker sizing, or individual circuit breaker manufacturer's designs, or tolerances. Having a preventable problem take the fire protection system in a building out of service for weeks or even months, if not detected, is not a rational design philosophy. Further, today's cost for fixing all these problems is trivial.

Committee Meeting Action: Accept in Principle

Committee Statement: See Committee action on 20-76 (Log #CC1).

20-78 Log #2 Final Action: Accept

(10.10.3.4)

Submitter: Vince Baclawski, National Electrical Manufacturers Association (NEMA)

Comment on Proposal No: 20-131

Recommendation: Revise text to read as follows:

10.10.3.4 When the manual selection means required in 10.10.7.3 is used to initiate a switchover from variable speed to bypass mode, if the pump is running in the variable speed mode and none of the conditions in 10.10.3 which require the controller to initiate the bypass operation exist, the controller shall be arranged to provide a restart delay to allow the motor to ~~stop~~ be de-energized before it is re-energized ~~restarted~~ in the bypass mode. ~~This requirement shall not apply if the controller is arranged to provide a closed transition for the fire pump motor when transferring from variable speed to bypass mode.~~

Substantiation: The motor does not need to come to a complete stop before being transferred to the by-pass mode. The use of a closed transition design for a fire pump controller incorporating a VFD is not practical.

Committee Meeting Action: Accept

20-79 Log #27 Final Action: Accept in Principle
(10.10.7.2 and 10.10.7.2.1 (New))

Submitter: John R. Kovacik, Underwriters Laboratories Inc.
Comment on Proposal No: 20-132
Recommendation: Revise text to read as follows:

10.10.7.2 Except as provided in 10.10.7.2.1 ~~T~~the variable speed pressure sensing element connected in accordance with 10.5.2.1.7.5 shall only be used to control the variable speed drive.

10.10.7.2.1 (New) Where redundant pressure sensing elements are provided they shall be permitted for other system functions.

Substantiation: This comment was prepared by the NFPA 20 Water Mist Task Group consisting of the following members; John Kovacik (Chair), Underwriters Laboratories; Gayle Pennel, Aon Risk Solutions; John Whitney, Clarke Fire Protection Products; Kerry Bell, Underwriters Laboratories; Hugh Castles, Entergy Services; Terry Victor, Tyco/SimplexGrinnell; Ken Isman, National Fire Sprinkler Association; Tim LaRose, Hughes Associates; Jennifer McGrath, Pentair Water; Wade Montague, Marioff; Zachary Magnone, Tyco/SimplexGrinnell; and Pasi Pennanen, Marioff.

With redundant sensing elements equivalent reliability is achieved. With current microprocessor based control technologies and architecture, having a single controller with appropriate redundancy schemes can provide equivalent or superior reliability while providing the added benefit of a central control location. This central control location would allow for advanced system diagnostics and status and offer the option of remote monitoring advancing firefighting efforts and system availability.

Committee Meeting Action: Accept in Principle
Revise section 10.10.7.2 to read as follows:

10.10.7.2 Except as provided in 10.10.7.2.1 ~~T~~the variable speed pressure sensing element connected in accordance with 10.5.2.1.7.5 shall only be used to control the variable speed drive.

Add new section 10.10.7.2.1 to read as follows:

10.10.7.2.1 Where redundant pressure sensing elements are provided as part of a water mist positive displacement pumping unit, they shall be permitted for other system functions.

Committee Statement: Adding water mist positive displacement pumping unit in proposed comment section 10.10.7.2.1 restricts the use of this provision to water mist displacement pumping units.

20-80 Log #28 Final Action: Accept
(10.10.7.4 and 10.10.7.4.1 (New))

Submitter: John R. Kovacik, Underwriters Laboratories Inc.
Comment on Proposal No: 20-133
Recommendation: Revise text to read as follows:
10.10.7.4 Except as provided in 10.10.7.4.1, ~~e~~ common pressure control shall not be used for multiple pump installations. Each controller pressure sensing control circuit shall operate independently.
10.10.7.4.1 (New) A common pressure control shall be permitted to be used for a Water Mist Positive Displacement Pumping Unit controller.
Substantiation: This comment was prepared by the NFPA 20 Water Mist Task Group consisting of the following members; John Kovacik (Chair), Underwriters Laboratories; Gayle Pennel, Aon Risk Solutions; John Whitney, Clarke Fire Protection Products; Kerry Bell, Underwriters Laboratories; Hugh Castles, Entergy Services; Terry Victor, Tyco/SimplexGrinnell; Ken Isman, National Fire Sprinkler Association; Tim LaRose, Hughes Associates; Jennifer McGrath, Pentair Water; Wade Montague, Marioff; Zachary Magnone, Tyco/SimplexGrinnell; and Pasi Pennanen, Marioff.
Multiple comments have been submitted which define Water Mist Positive Displacement Pumping Unit and provides the requirements for operation as a single pumping unit. With current microprocessor based control technologies and architecture, having a single controller with appropriate redundancy schemes can provide equivalent or superior reliability while providing the added benefit of a central control location. This central control location would allow for advanced system diagnostics and status and offer the option of remote monitoring advancing firefighting efforts and system availability.
Committee Meeting Action: Accept

20-81 Log #78 Final Action: Accept
(11.1.3)

Submitter: Darrell W. Underwood, Underwood Fire Equipment, Inc.
Comment on Proposal No: 20-135
Recommendation: Delete text as follows:
~~11.1.3 The installation instructions of the manufacturer of the fire pump engine shall be followed.~~
Substantiation: The entire section should be deleted / omitted because the NFPA 20 sections 4.3.3 & 4.4 all ready state that the system installer (pump, controller & driver) shall be qualified. Adding manufacturer's instructions could and does lead to problems with unqualified people installing equipment. The pump manufacturer and their representative shall coordinate that all of the equipment is compatible with each other.
Committee Meeting Action: Accept

20-82 Log #CC3 Final Action: Accept
(11.2.7.2.1.5)

Submitter: Technical Committee on Fire Pumps,
Comment on Proposal No: 20-156
Recommendation: Revise section 11.2.7.2.1.5 to read as follows:
11.2.7.2.1.5* Batteries shall be sized, based on calculations, ~~on a calculated~~ to have capacity to carry the loads defined in 11.2.7.2.3 for ~~of~~ 72 hours of standby power followed by three 15–second attempt-to-start cycles per battery unit as defined in 11.2.7.2.1.4, without ac power being available for battery charging.
Substantiation: This Comment is to provide information in addition to ROP Log #244 with clarification of the requirements of the engine starting battery's loads, and in what sequence of applying the loads to the batteries, the batteries will be required to perform.
Inquiries are coming from battery suppliers looking for this explanation.
Committee Meeting Action: Accept

20-83 Log #121 Final Action: Reject
(11.2.7.3.2)

Submitter: James S. Nasby, Skokie, IL
Comment on Proposal No: 20-156
Recommendation: Add new sentence to read:
Where the engine has been tested with the engine heater active, the engine heater shall be one which is listed for fire pump service.
Substantiation: Where the engine heater is active during testing of the engine, it becomes a critical path item; but, there is no back-up for the heater if it fails. This can leave the fire pump unable to start and run during a fire. Also note that some heaters in the field can be easily unplugged since they are fed from a typical utility 115 Vac outlet box and cord.
Committee Meeting Action: Reject
Committee Statement: This is a product Listing issue, and is currently addressed closely by commonly used Listing bodies.

20-84 Log #122 Final Action: Reject
(11.2.7.3.3)

Submitter: James S. Nasby, Skokie, IL
Comment on Proposal No: 20-157
Recommendation: Add new sentence to read:
Where the engine has been tested with the engine heater active, the engine heater shall be one which is listed for fire pump service.
Substantiation: Where the engine heater is active during testing of the engine, it becomes a critical path item; but, there is no back-up for the heater if it fails. This can leave the fire pump unable to start and run during a fire. Also note that some heaters in the field can be easily unplugged since they are fed from a typical utility 115 Vac outlet box and cord.
Committee Meeting Action: Reject
Committee Statement: This is a product Listing issue, and is currently addressed closely by commonly used Listing bodies.

20-85 Log #42 Final Action: Accept
(11.4.1.2)

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.
Comment on Proposal No: 20-174
Recommendation: Rather than add a new section 11.4.1.2.4.1 as shown in the proposal, take the following steps:
1. Revise 11.4.1.2.1 to start, "Tanks shall be single wall or double wall and shall be designed and constructed in accordance with . . ."
2. Revise 11.4.1.2.4 to start, "Single wall ~~Fuel~~ fuel tanks shall be enclosed with a wall, curb or dike . . ."
3. Delete the last three paragraphs of A.11.4.3.

~~Research has identified nothing in NFPA 30, Flammable and Combustible Liquids Code, or NFPA37, Standard for the Installation and Use of Stationary Combustion Engines and Gas Turbines, that prohibits the outlet connection to the engine from the diesel tank from being in the location required by NFPA 20.~~

~~The applicable code is NFPA37, not NFPA30. The scope of NFPA 30 clearly states that if the installation meets the criteria in NFPA 37, then it satisfies the requirements of NFPA 30.~~

~~Therefore, NFPA 37 applies for the fuel tank for the fire pump, as it is considered to be part of the installation of the internal combustion engine. Subsection 6.3.2 of NFPA 37 deals with fuel tanks inside structures for fuels other than Class I liquids. Sections 6.6, 6.7, and 6.8 of NFPA 37 deal with filling, venting, and connections between the engine and the fuel tank, and these sections send the reader back to NFPA 30 for the requirements. A review of the tank chapter in NFPA 30 for fixed tanks with capacity of 119 gallons or more finds no requirement stating that the connection to the engine has to be from the top of the tank, if the tank is on the floor on legs, or otherwise above ground.~~

Substantiation: This is the subject of a TIA that straightens out errors that were made in the processing of NFPA 20 in the 2010 edition that were not found until after the proposal closing date of the 2013 edition. Luckily, Proposal 20-174 was submitted on the subject. This comment, solves the problems in cleaner ways than the TIA in line with committee comments that were made in support of the TIA.

The purpose of the TIA and this comment are to specifically allow double-wall tanks to be used without dikes in accordance with NFPA 20 as agreed by the committee during the ROC for the 2010 edition. Also, the sections in the annex sending the sure to NFPA 37 are incorrect and were taken out of the document by the committee in the 2010 edition, yet they still appear in the stand for no understandable reason.
Committee Meeting Action: Accept

20-86 Log #39 Final Action: Accept in Principle
(11.4.2.4)

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.
Comment on Proposal No: 20-213
Recommendation: Review the addition to section 11.4.2.4 that was made in Proposal 20-213 and make sure it does not conflict with previous actions.
Substantiation: A typo was made in the ROP that put a change to Chapter 11 in the Chapter 14 proposals. Somebody looking back through the ROP in the future will never find this text unless there is some acknowledgment of the error.
Committee Meeting Action: Accept in Principle
Change proposal 20-213 section reference location and revise language as follows:
11.4.2.6.3 The low fuel level condition shall initiate a supervisory signal.
Committee Statement: The section location has been clarified.

20-87 Log #43 Final Action: Accept
(11.4.3.5)

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.
Comment on Proposal No: 20-176
Recommendation: Clarify that the new section number for the rule is 11.4.1.2.8, not 11.4.1.2.83.5 as indicated in the ROP.
Substantiation: Needs clarification.
Committee Meeting Action: Accept

20-88 Log #CC7 Final Action: Accept
(11.4.4)

Submitter: Technical Committee on Fire Pumps,
Comment on Proposal No: 20-178
Recommendation: Add new sections and text as follows:
11.4.4.5 A manual shut off valve shall be provided within the tank fuel supply line.
11.4.4.5.1 The valve shall be locked in the open position.
11.4.4.5.2 No other valve than a manual locked open valve shall be put in the fuel line from the fuel tank to the engine.
Substantiation: It is the committees intent to limit the number and types of valves in the fuel line to the engine.
Committee Meeting Action: Accept

20-89 Log #95 Final Action: Reject
(11.4.6)

Submitter: Tracey D. Bellamy, Telgian Corporation
Comment on Proposal No: 20-180
Recommendation: Reject the proposal.
Substantiation: The installation of static electricity protection is needed to limit ignition sources where an ignitable concentration of flammable vapors might exist. With the specific usage of diesel fuel storage as a Class II liquid having a flash point on the order of 125ºF the development of ignitable concentrations of flammable vapors is not relevant. As such the installation of static electricity protection is not warranted. This is indicated by NFPA 30, 28.3.1.1 (2) for unloading facilities that only handle Class II liquids below their flash point.
This is not original material; its reference/source is as follows:
ROP 20-180
Committee Meeting Action: Reject
Committee Statement: Bonding and grounding are good inexpensive means of controlling static electricity and would be considered good design practice.

20-90 Log #91 Final Action: Accept in Principle
(11.6.4.3 and A.11.6.4.3.3)

Submitter: Russell B. Leavitt, Telgian Corporation
Comment on Proposal No: 20-181
Recommendation: Revise text to read as follows:

11.6.4.3* ~~Where environmental or fuel quality conditions result in degradation of the fuel while stored in the supply tank from items such as water, micro-organisms and particulates, or destabilization,~~ A listed active fuel maintenance system shall be installed ~~to maintain fuel quality~~ with all fuel storage tanks.

A.11.6.4.3.3 ~~When required,~~ The listed active fuel maintenance system shall be permanently connected to the fuel tank as follows:

Substantiation: This entire section reads as a reactive action. It states that "Where environmental or fuel quality conditions result [emphasis added] in degradation . . .
Reactive actions are not appropriate for an installation standard and should be assigned to NFPA 25. If the intent is for the installer to somehow make a determination that the conditions exist from the onset, then how is that determined?

The committee must either explain how to determine the conditions exist for degradation and then add the word could before "result in degradation of the fuel" or require it for all fuel storage tanks. If the problem is as pervasive as the committee seems to believe, then it should be a requirement for all storage tanks.

Committee Meeting Action: Accept in Principle
Revise section 11.6.4.3* and section A.11.6.4.3.3 to read as follows:

11.6.4.3* ~~Where environmental or fuel quality conditions result in degradation of the fuel while stored in the supply tank from items such as water, micro-organisms and particulates, or destabilization,~~ A listed active fuel maintenance system shall be installed ~~to maintain fuel quality~~ with all fuel storage tanks.

A.11.6.4.3.3 ~~When required,~~ The listed active fuel maintenance system ~~shall~~ should be permanently connected to the fuel tank as follows:

Committee Statement: The annex statement changed the "shall" to a "should" to remove the requirement.

20-91 Log #79 Final Action: Accept in Principle
(12.3.5.3.2)

Submitter: Darrell W. Underwood, Underwood Fire Equipment, Inc.
Comment on Proposal No: 20-184
Recommendation: Delete text as follows:

~~No undervoltage, phase loss, frequency sensitive, or other devices(s) shall be field installed that automatically or manually prohibits electrical actuation of the motor contractor.~~

Substantiation: The entire section should be deleted / omitted. The code is written on what to do, not on what not to do. It would be better for the committee to write a paragraph in the general section of the code stipulating that *"If it is not written in the code, then it cannot be done".*

Committee Meeting Action: Accept in Principle
Maintain the wording in ROP 20-184.

Committee Statement: See Committee Action on ROP 20-184 rewording the proposal.

20-92 Log #3 Final Action: Accept in Principle in Part
(12.4.1.3(1))

Submitter: Vince Baclawski, National Electrical Manufacturers Association (NEMA)
Comment on Proposal No: 20-185
Recommendation: Revise text to read as follows:

12.4.1.3 (1) Critically low oil pressure in the lubrication system. ~~The controller shall provide means for testing the position of the pressure switch contacts without causing fire pump alarms.~~

(2) High engine ~~jacket coolant~~ temperature

(3) Failure to start automatically

(4) Shutdown from over-speed

12.4.1.3 .1 Instructions shall be provided on how to test the operation of the signals in 12.4.1.3.

Substantiation: The deleted text was inserted in error. The original intent was to require instructions for verifying proper operation of the signals required in 12.4.1.3. A separate paragraph has been added to facilitate this. Additionally, the words “jacket coolant” are deleted as not all engines are liquid-cooled and the requirement is more generically stated as monitoring engine temperature.
Committee Meeting Action: Accept in Principle in Part
Revise text in the second sentence of 12.4.1.3(1) as follows and accept all other changes:

12.4.1.3

(1) Critically low oil pressure in the lubrication system. The controller shall provide means for testing ~~the position of the pressure switch contacts~~ the low oil pressure alarms and circuit in conjunction with the engine circuit testing method. ~~without causing fire pump alarms.~~

(2) High engine ~~jacket coolant~~ temperature

(3) Failure to start automatically

(4) Shutdown from over-speed

12.4.1.3.1 Instructions shall be provided on how to test the operation of the signals in 12.4.1.3.

Committee Statement: Provides requirements covering additional testing issues not covered in the comment.

20-93 Log #38 Final Action: Accept
(12.4.1.4(1))

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.
Comment on Proposal No: 20-187
Recommendation: Change the word “alarm” to “signal” and the word “alarms” to “signals” wherever they occur in the section or paragraph.
Substantiation: As the pump committee has discussed in the past, an “alarm” is a reason to call the fire department. A “signal” is a reason to call someone to fix a problem that is not a fire. If a battery fails, the correct action to take is not to call the fire department. We need to use the same terminology as the rest of the fire protection world.
Committee Meeting Action: Accept

20-94 Log #127 Final Action: Accept in Principle
(12.4.1.5 and 12.4.1.5.1)

Submitter: John Whitney, Clarke Fire Protection Products
Comment on Proposal No: 20-148
Recommendation: Add new text to read as follows:
Proposed new text to address the same issue in the referenced ROP log.
Renumber existing 12.4.1.5.1 to 12.4.1.5.2
12.4.1.5.1 Additional to the main controller switch, a silencing switch shall be provided for the conditions defined in 12.4.1.5 allowing the alarm to be silenced for 4 hours and then re-sound, repeatedly.
New 12.4.1.5.2.1 (this is a new subparagraph to the existing 12.4.1.5.1) The silencing switch required in 12.4.1.5.2 shall be capable of being silenced repeatedly for 24 hours and then re-sound.
Renumber existing 12.4.1.5.2 to 12.4.1.5.3 and following paragraphs accordingly.
Substantiation: Since the TC rejected my proposal for dual level alarms that could be managed with a two level response, this is a different approach to correct a very real problem in the field. Some conditions which are being alarmed cannot be corrected immediately, i.e. the low engine temperature or fuel injection malfunction sounds, it may take 24 hours or longer to get the condition corrected and operators do not want to listen to the alarm the whole time plus the alarm is not available for additional alarm conditions. It has been experienced in the field where audible alarms were disabled resulting in no audible alarm for new alarm condition and the fire pump failed to respond when needed.
Committee Meeting Action: Accept in Principle
Revise section 12.4.1.5 to read as follows:
12.4.1.5 A separate signal silencing switch or valve, other than the controller main switch, shall be provided ~~permitted~~ for the conditions reflected in 12.4.1.3 and 12.4.1.4.
Delete existing section 12.4.1.5.1:
~~12.4.1.5.1 A separate signal silencing switch shall be used for the conditions of 12.4.1.4(5), 12.4.1.4(7), and 12.4.1.4(8).~~
Add new sections 12.4.1.5.1, 12.4.1.5.2 and 12.4.1.5.3 to read as follows:
12.4.1.5.1 The switch or valve shall allow the audible device to be silenced for up to 4 hours and then re-sound repeatedly for the conditions in 12.4.1.3 and then re-sound repeatedly.
12.4.1.5.2 The switch or valve shall allow the audible device to be silenced for up to 24 hours and then re-sound repeatedly for the conditions in 12.4.1.4 and then re-sound repeatedly.
12.4.1.5.3 The audible device shall re-sound until the condition is corrected or the main switch is placed in the OFF position.
Renumber existing 12.4.1.5.2* as 12.4.1.6*, 12.4.1.5.3 as 12.4.1.7 and 12.4.1.5.4 as 12.4.1.8.
Committee Statement: Revised to better clarify the requirements addressed in the comment.

20-95 Log #63 Final Action: Reject
(12.7.2.1.1.2 and A.12.7.2.1.1.2)

Submitter: James S. Nasby, Skokie, IL
Comment on Proposal No: 20-192
Recommendation: Accept Proposal 20-192.
Substantiation: Numerous pressure transducer failures have been already detected and repaired in the field. There has also been a massive recall of transducers from what was the major supplier which involves many hundreds of diesel and electric motor drive controllers.
Note that this is can be easily met by detecting a transducer output signal over-range or under-range.
Committee Meeting Action: Reject
Committee Statement: Periodic testing in accordance with NFPA 25 should identify problems.

20-96 Log #64 Final Action: Accept
(12.7.2.2.3)

Submitter: James S. Nasby, Skokie, IL
Comment on Proposal No: 20-195
Recommendation: Accept this revised wording of P20-195:
12.7.2.2.3 Starting of the engine shall be initiated by the opening of the control circuit loop containing this fire protection equipment.
Note that P20-195 had "motor" instead of "engine" in error. This caused misinterpretation of the intent of the proposal.
Substantiation: Editorial: This was in 1993 edition but was somehow dropped in the 1996 edition. This requirement should and does apply to both diesel driven and motor driven fire pump installations equally.
Note that matching clause 10.5.2.3.3 was added to Chapter 10 in 2003.
Committee Meeting Action: Accept

20-97 Log #8 Final Action: Accept in Principle
(Table 14.1.1.1)

Submitter: David R. Hague, Liberty Mutual Commercial Markets
Comment on Proposal No: 20-199
Recommendation: Revise text to read as follows:
Nominal metric equivalent for 1.5” = 40mm and 3” = 80mm.
Substantiation: Editorial
Committee Meeting Action: Accept in Principle
Change the name of the table to “Minimum Flow Rates for Flushing Suction Piping.”
Add new Annex section A.14.1.1 to read as follows:
A.14.1.1 The suction piping to a fire pump needs to be adequately flushed to make sure stones, silt and other debris will not enter the pump or the fire protection system. The flow rates in Table 14.1.1 are the minimum recommended, which will produce a velocity of approximately 15 feet per second. If the flow rate cannot be achieved with the existing water supply, a supplemental source such as a fire department pumper may be necessary. The procedure is to be performed, witnessed and signed off before connection to the suction piping is completed.

20-98 Log #94 Final Action: Accept
(14.1.1.3)

Submitter: Tracey D. Bellamy, Telgian Corporation
Comment on Proposal No: 20-200
Recommendation: Revise text to read as follows:
Reconsider the proposal with a corrected reference to the new Table 14.1.1.1 rather than Tables 14.1.1.1(a) and 14.1.1.1(b).
Substantiation: While the flushing flow rates are presented in Section 14.1, 14.2 and Table 14.1.1.1 an allowance is needed to provide for the use of the maximum available flow rates. This is a companion allowance similar to the provisions of not having to reach the 150% of rated capacity for a fire pump.
Committee Meeting Action: Accept

20-99 Log #14 Final Action: Accept in Principle
(14.2.2)

Submitter: David R. Hague, Liberty Mutual Commercial Markets
Comment on Proposal No: 20-202
Recommendation: Revise text to read as follows:
14.2.2* The date, time and location of the field acceptance test shall be coordinated with the authority having jurisdiction.
A.14.2.2 In addition, representatives of the installing contractor, insurance company and, owner should be present.
Substantiation: The AHJ should not only be notified of the time and location of the field acceptance test but this important milestone in the project should be coordinated to provide every opportunity for the AHJ to witness the completion of the test and sign-off on the test report. Some jurisdictions may require more advance notice than others however this should not preclude the effort of making sure that the AHJ can attend. Added reference to the insurance company representative in the annex as this AHJ typically will witness such testing but is not a required participant.
Committee Meeting Action: Accept in Principle
Accept the revised text proposed with a change to remove the reference to an annex document (14.2.2*), Move the existing annex section A.14.2.2 text to a new annex section No. 14.2.1. Add an asterisk to the existing (Section 14.2.1*).
14.2.2* The date, time and location of the field acceptance test shall be coordinated with the authority having jurisdiction.
A.14.2.21 In addition, representatives of the installing contractor, insurance company and owner should be present.
Committee Statement: The existing reference to the annex document referenced the wrong section in the Chapter 14.

20-100 Log #65 Final Action: Accept in Principle
(14.2.2)

Submitter: James S. Nasby, Skokie, IL
Comment on Proposal No: 20-202
Recommendation: Accept the intent of the proposal but with revised wording of P20-202 as follows:
14.2.2* All the authorities having jurisdiction shall be notified no less than three weeks in advance, as to the time and place of the field acceptance test.
Substantiation: The AHJ has to be given the chance to schedule, if not approve, the time of the acceptance testing. The AHJ often is not given sufficient notice.
Committee Meeting Action: Accept in Principle
Committee Statement: See Committee action 20-99 (Log#14).

20-101 Log #105 Final Action: Accept in Principle
(14.2.2)

Submitter: Dana R. Haagensen, Massachusetts Department of Fire Services
Comment on Proposal No: 20-202
Recommendation: Revise text to read as follows:
14.2.2* All the authorities having jurisdiction shall be notified at least 7 calendar days prior to the time and place of the field acceptance test.
Substantiation: If the Committee is unwilling to accept a requirement for scheduling, then a timeframe needs to be established.
Committee Meeting Action: Accept in Principle
Committee Statement: See Committee action 20-99 (Log#14).

20-102 Log #124 Final Action: Accept in Principle
(14.2.2)

Submitter: John Chartier, Northeastern Regional Fire Code Development
Comment on Proposal No: 20-202
Recommendation: Add the following to 14.2.2 as follows:
14.2.2.1 The time of the field acceptance test shall be acceptable to the authority having jurisdiction.
Substantiation: The AHJ, who is obligated to approve the installation, needs to be given a reasonable opportunity to witness the tests. By merely notifying the AHJ, the installing contractor and/or manufacturer rep can schedule the tests knowing that the AHJ may not be able to attend.
Committee Meeting Action: Accept in Principle
Committee Statement: See Committee action 20-99 (Log#14).

20-103 Log #80 Final Action: Reject
(14.2.5.2.3)

Submitter: Darrell W. Underwood, Underwood Fire Equipment, Inc.
Comment on Proposal No: 20-207
Recommendation: Add new text to read as follows:
The minimum, rated, and peak loads of the fire pump shall be determined by controlling the quantity of water discharged through approved test devices. Separate points of 50% and 125% flow shall be taken to make a smooth curve to compare to the factory curve.
Substantiation: The committee statement is incorrect. If a three point curve is sufficient, then why do manufacturers and testing laboratories require more points (up to 10 points)? We have enclosed curves of tests done in the field with only three test points that don't adequately verify the fire pumps performance against the certified factory curve. There are companies and individuals interpreting annual fire pump test results in the field and passing pumps that are not performing properly.
Note: Supporting material is available for review at NFPA Headquarters.
Committee Meeting Action: Reject
Committee Statement: The three points historically used is sufficient to allow for the test curve results. The three point flow test is outlined in NFPA 25 for annual testing cycle.

20-104 Log #113 Final Action: Reject
(14.2.5.2.3)

Submitter: Michael A. Anthony, University of Michigan / Rep. APPA.ORG - Leadership in Education/Association of Education Facility Executives
Comment on Proposal No: 20-207
Recommendation: Accept the proposal with modifications. Change the language to convey the intent to require a 5-point test during acceptance and commissioning (covered in NFPA 20) only so that only a 3-point test is required during annual testing (covered in NFPA 25). The difference in the scope of NFPA 20 and 25 may not be widely understood. Insurance companies and AHJ's may already be making this distinction but positive, prescriptive language may improve this document. Something to this effect:
During acceptance and commissioning only, Tthe minimum, rated, and peak loads of the fire pump shall be determined by controlling the quantity of water discharged through approved test devices. Separate points of 50 percent and 125 percent flow shall be taken to make a smooth curve to compare to the factory curve. Thereafter, annual tests shall require a 3-point test only.
Substantiation: This concept contributes to our industry's sustainability ambitions by making structural changes to the fire safety regulations that govern the amount of water used during annual fire pump testing. In many large campuses, the city water bill for fire pump testing is significant. With negligible reduction in occupant and/or property protection, fire safety operations and maintenance cost avoidance would be realized because less water is needed for 3-point annual test than for a 5-point annual test.
AHJ's and insurance companies could give some consideration for the range of risk found in the variety of occupancy types in most college and university campuses. A group of classroom and administrative facilities occupied only during business hours in the middle of campus is likely to have a different risk profile than a student high-rise residence hall occupied 24/7/365 located farther away from the core campus. Health facilities, obviously, in a separate risk classification. Nothing stops an insurance company or an AHJ from requiring 5-point tests every year, though.
Committee Meeting Action: Reject
Committee Statement: The three points historically used is sufficient to allow for the test curve results. The three point flow test is outlined in NFPA 25 for annual testing cycle.

20-105 Log #22 Final Action: Accept
(14.2.6.2.1, 14.2.6.2.2, 14.2.6.2.2.1, and 14.2.6.2.2.2 (New))

Submitter: John R. Kovacik, Underwriters Laboratories Inc.
Comment on Proposal No: N/A
Recommendation: Insert new Sections as follows:

14.2.6.2.1 For Water Mist Positive Displacement Pumping Units, each pump shall be operated manually a minimum of six times during the acceptance test.

14.2.6.2.2 . For Water Mist Positive Displacement Pumping Units, each of the required automatic operations shall operate all pumps, except as provided in 14.2.6.2.2.1 and 14.2.6.2.2.2.

14.2.6.2.2.1 Where redundant pumps are provided each of the automatic operations shall operate the number of pumps required to meet system demand.

14.2.6.2.2.2 Where redundant pumps are provided each pump shall operate for a minimum of three automatic operations.

Substantiation: This comment was prepared by the NFPA 20 Water Mist Task Group consisting of the following members; John Kovacik (Chair), Underwriters Laboratories; Gayle Pennel, Aon Risk Solutions; John Whitney, Clarke Fire Protection Products; Kerry Bell, Underwriters Laboratories; Hugh Castles, Entergy Services; Terry Victor, Tyco/SimplexGrinnell; Ken Isman, National Fire Sprinkler Association; Tim LaRose, Hughes Associates; Jennifer McGrath, Pentair Water; Wade Montague, Marioff; Zachary Magnone, Tyco/SimplexGrinnell; and Pasi Pennanen, Marioff.

Multiple comments have been submitted which define Water Mist Positive Displacement Pumping Unit and provides the requirements for operation as a single pumping unit. This information is necessary to make certain the sections in the standard are properly correlated and that the Water Mist Positive Displacement Pumping Unit is not in conflict with requirements for centrifugal pumps.

Committee Meeting Action: Accept

20-106 Log #114 Final Action: Reject
(14.2.10)

Submitter: Michael A. Anthony, University of Michigan
Comment on Proposal No: 20-207
Recommendation: For consistency within this document, make a corresponding change to accompany APPA's original comment on 20-207 (Log #49):

14.2.10 Test Duration. The fire pump or foam concentrate pump shall be in operation for not less than 1 hour total time during all of the foregoing tests. Water flow is not required beyond the duration of the 5-point flow tests of 14.2.5.2.3

Substantiation: This comment corresponds to our comment on 20-207 Log #49 and is intended to produce consistency in the document so that it is easier to interpret and enforce.
Measuring technology and pump reliability has advanced such that pump performance acceptance tests can be verified in far less than 1 hour. The changes proposed by the original submitter will contribute mightily to our industry's--and the nation's sustainability ambitions. Very little, if any, is put at risk by reducing the amount of water used during fire pump tests. Whole-building sprinkler discharge is extremely rare -- with just a few sprinkler heads requiring water supply during a fire incident in a local area -- and pumps running full tilt are even rarer. The requirement to run a full hour is far out of proportion to the risk. Much is to be gained in avoided cost associated with inspection, testing and maintenance. Fire protection resources may then be deployed where risk is greater.

For the convenience of the committee, the following is a clean compilation of the two comments we have submitted for the 2013 revision of this document:

14.2.5.2.3 During acceptance and commissioning only, the minimum, rated, and peak loads of the fire pump shall be determined by controlling the quantity of water discharged through approved test devices. Separate points of 50 percent and 125 percent flow shall be taken to make a smooth curve to compare to the factory curve. Thereafter, annual tests shall require a 3-point test only.

14.2.10 Test Duration. The fire pump or foam concentrate pump shall be in operation for not less than 1 hour total time during all of the foregoing tests. Water flow is not required beyond the duration of the 5-point flow tests of 14.2.5.2.3.

Committee Meeting Action: Reject
Committee Statement: The submitter is asking to include new business into this comment. The original proposal did not include Section 14.2.10.

20-107 Log #23 Final Action: Accept
(14.5.1.3.1 (New))

Submitter: John R. Kovacik, Underwriters Laboratories Inc.
Comment on Proposal No: N/A
Recommendation: Insert new Section as follows:

14.5.1.3.1 For Water Mist Positive Displacement Pumping Units, the retest shall include the pump unit as a whole.

Substantiation: This comment was prepared by the NFPA 20 Water Mist Task Group consisting of the following members; John Kovacik (Chair), Underwriters Laboratories; Gayle Pennel, Aon Risk Solutions; John Whitney, Clarke Fire Protection Products; Kerry Bell, Underwriters Laboratories; Hugh Castles, Entergy Services; Terry Victor, Tyco/SimplexGrinnell; Ken Isman, National Fire Sprinkler Association; Tim LaRose, Hughes Associates; Jennifer McGrath, Pentair Water; Wade Montague, Marioff; Zachary Magnone, Tyco/SimplexGrinnell; and Pasi Pennanen, Marioff.

Multiple comments have been submitted which define Water Mist Positive Displacement Pumping Unit and provides the requirements for operation as a single pumping unit. This information is necessary to make certain the sections in the standard are properly correlated and that the Water Mist Positive Displacement Pumping Unit is not in conflict with requirements for centrifugal pumps.
Committee Meeting Action: Accept

20-108 Log #15 Final Action: Reject
(Table 14.5.2.4)

Submitter: David R. Hague, Liberty Mutual Commercial Markets
Comment on Proposal No: 20-226
Recommendation: In section H, items 3, 4 & 5 of the table, change hydrostatic test reference from NFPA 13, 24.2.1 to NFPA 20, 14.1.2.1.
Substantiation: Hydrostatic testing requirements for fire pumps is appropriately referenced in Chapter 14 of NFPA 20. There is no reason to send the end-user to another document.
Committee Meeting Action: Reject
Committee Statement: Table 14.5.2.4 has been removed. See committee action 20-119 (Log #CC8).

20-109 Log #70 Final Action: Reject
(Table 14.5.2.4)

Submitter: Darrell W. Underwood, Underwood Fire Equipment, Inc.
Comment on Proposal No: 20-226
Recommendation: Revise text to read as follows:
Steam Regulator or source upgrade. Perform acceptance test in accordance with NFPA 20, ~~14.5.2.7~~ 14.2.
Substantiation: This is an error since the table was created and should be corrected to have a field acceptance completed.
Committee Meeting Action: Reject
Committee Statement: Table 14.5.2.4 has been removed. See Committee action 20-119 (Log #CC8).

20-110 Log #81 Final Action: Reject
(Table 14.5.2.4)

Submitter: Darrell W. Underwood, Underwood Fire Equipment, Inc.
Comment on Proposal No: 20-226
Recommendation: Revise text to read as follows:
Entire pump assembly Perform acceptance test in accordance with NFPA 20, ~~14.5.2.7.2~~ 14.2 and 14.5.1.4.
Substantiation: This is an error since the table was created and should be corrected to include a complete acceptance test.
Committee Meeting Action: Reject
Committee Statement: Table 14.5.2.4 has been removed. See Committee action 20-119 (Log #CC8).

20-111 Log #82 Final Action: Reject
(Table 14.5.2.4)

Submitter: Darrell W. Underwood, Underwood Fire Equipment, Inc.
Comment on Proposal No: 20-226
Recommendation: Revise text to read as follows:
Impeller/rotating assembly Perform acceptance test in accordance with NFPA 20, ~~14.5.2.7.2~~ 14.2 and 14.5.1.4.
Substantiation: This is an error since the table was created and should be corrected to include a complete acceptance test.
Committee Meeting Action: Reject
Committee Statement: Table 14.5.2.4 has been removed. See Committee action 20-119 (Log #CC8).

20-112 Log #83 Final Action: Reject
(Table 14.5.2.4)

Submitter: Darrell W. Underwood, Underwood Fire Equipment, Inc.
Comment on Proposal No: 20-226
Recommendation: Revise text to read as follows:
Casing Perform acceptance test in accordance with NFPA 20, ~~14.5.2.7.2~~ 14.2 and 14.5.1.4.
Substantiation: This is an error since the table was created and should be corrected to include a complete acceptance test. The fire pump casing directly affects the performance of the fire pump and should be tested under all loads.
Committee Meeting Action: Reject
Committee Statement: Table 14.5.2.4 has been removed. See Committee action 20-119 (Log #CC8).

20-113 Log #84 Final Action: Reject
(Table 14.5.2.4)

Submitter: Darrell W. Underwood, Underwood Fire Equipment, Inc.
Comment on Proposal No: 20-226
Recommendation: Revise text to read as follows:
Gear right angle drives (Repair) Perform acceptance test in accordance with NFPA 20, ~~14.5.2.7.2~~ 14.2.
Substantiation: This is an error since the table was created and should be corrected to include a complete acceptance test. A right angle gear drive is a critical path component and should be tested under all loads and speeds.
Committee Meeting Action: Reject
Committee Statement: Table 14.5.2.4 has been removed. See Committee action 20-119 (Log #CC8).

20-114 Log #85 Final Action: Reject
(Table 14.5.2.4)

Submitter: Darrell W. Underwood, Underwood Fire Equipment, Inc.
Comment on Proposal No: 20-226
Recommendation: Revise text to read as follows:
Entire controller (Repair) Perform acceptance test in accordance with NFPA 20, 14.2.6 and 14.2.7.
Entire Controller (Rebuild / Replace) Perform acceptance test in accordance with NFPA 20, 14.2.5, 14.2.6 and 14.2.7.
Substantiation: This is an error since the table was created and should be corrected to include a test on the alternate power supply as well.
Committee Meeting Action: Reject
Committee Statement: Table 14.5.2.4 has been removed. See Committee action 20-119 (Log #CC8).

20-115 Log #86 Final Action: Reject
(Table 14.5.2.4)

Submitter: Darrell W. Underwood, Underwood Fire Equipment, Inc.
Comment on Proposal No: 20-226
Recommendation: Revise text to read:
Main contactor. Perform acceptance test in accordance with NFPA 20, 14.2.6 and 14.2.7.
Substantiation: This is an error since the table was created and should be corrected to include a test on the alternate power supply as well.
Committee Meeting Action: Reject
Committee Statement: Table 14.5.2.4 has been removed. See Committee action 20-119 (Log #CC8).

20-116 Log #87 Final Action: Reject
(Table 14.5.2.4)

Submitter: Darrell W. Underwood, Underwood Fire Equipment, Inc.
Comment on Proposal No: 20-226
Recommendation: Revise text to read as follows:
Main contactor Perform acceptance test in accordance with NFPA 20, 14.2.6 and 14.2.7.
Substantiation: This is an error since the table was created and should be corrected to include a test on the alternate power supply as well.
Committee Meeting Action: Reject
Committee Statement: Table 14.5.2.4 has been removed. See Committee action 20-119 (Log #CC8).

20-117 Log #88 Final Action: Reject
(Table 14.5.2.4)

Submitter: Darrell W. Underwood, Underwood Fire Equipment, Inc.
Comment on Proposal No: 20-226
Recommendation: Revise text to read as follows:
Incoming power conductors Perform acceptance test in accordance with NFPA 20, ~~14.5.2~~ 14.2.
Substantiation: This is an error since the table was created and should be corrected. I believe the committee intended for the table to stipulate section 14.2.5 “Field Acceptance Test Procedures”, but a typo was made. However, section 14.2 would be better because it covers all the requirements for a Field Acceptance Test.
Committee Meeting Action: Reject
Committee Statement: Table 14.5.2.4 has been removed. See Committee action 20-119 (Log #CC8).

20-118 Log #89 Final Action: Reject
(Table 14.5.2.4)

Submitter: Darrell W. Underwood, Underwood Fire Equipment, Inc.
Comment on Proposal No: 20-226
Recommendation: Revise text to read as follows:
Steam turbine Perform annual acceptance test in accordance with NFPA ~~25, 8.3.3~~ 20, 14.2.
Substantiation: This is an error since the table was created and should be corrected to be a NFPA 20 acceptance test. A steam turbine is a major driver of the fire pump equipment. Just like a diesel engine or electric motor an acceptance test should be completed to ensure the driver operation under all loads and speeds.
Committee Meeting Action: Reject
Committee Statement: Table 14.5.2.4 has been removed. See Committee action 20-119 (Log #CC8).

20-119 Log #CC8 Final Action: Accept
(14.5.2.4, 14.5.2.6)

Submitter: Technical Committee on Fire Pumps,
Comment on Proposal No: 20-226
Recommendation: Remove Table 14.5.2.4.
Revise section 14.5.2.4 to read as follows:
14.5.2.4 Component Replacement. The requirements of table 8.6.1 of NFPA 25 shall be followed for component replacement testing.
Revise Section 14.5.2.6 to read as follows:
14.5.2.6 Whenever replacement, change, or modification to a critical path component is performed on a fire pump, driver, or controller, as described in 14.5.2.5, a new acceptance test ~~retest~~ shall be conducted ~~as indicated in Table 14.5.2.4~~ by the pump manufacturer, factory-authorized representative, or qualified persons acceptable to the authority having jurisdiction.
Substantiation: Restricts NFPA 20 to scope and removes discrepancies between tables in NFPA 20 and NFPA 25.
Committee Meeting Action: Accept

20-120 Log #108 Final Action: Hold
(A.4.12)

Submitter: Michael A. Anthony, University of Michigan / Rep. APPA.ORG - Leadership in Education/Association of Education Facility Executives
Comment on Proposal No: N/A
Recommendation: Add new text as shown below:
A.4.12 Special consideration needs to be given to fire pump installations installed belowgrade. Light, heat, drainage, and ventilation are several of the variables that need to be addressed. The vertical elevation of both the fire pump and the controller should be coordinated to ensure that both will not be flooded. Some locations or installations might not require a pump house. Where a pump room or pump house is required, it should be of ample size and located to permit short and properly arranged piping.
Substantiation: If a fire pump is on an elevated platform to keep it above a flood level, the bottom of the pump controller should not be below this level.
It is recognized that this comment will be held over until the next revision cycle because it presents the committee a new concept. We would like to see this concept tracking in the discussion at any point.
Committee Meeting Action: Hold
Committee Statement: This introduces new business and does not tie into a specific proposal.

20-121 Log #40 Final Action: Accept in Principle
(Figure A.4.14.6)

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.
Comment on Proposal No: 20-238
Recommendation: Reject Proposal 20-238.
Substantiation: There are too many problems with the “Right” portion in the middle of the figure. Depending on where the piping connected to the branch tee comes from, it might not be correct. The figure already contains sufficient examples of correct and incorrect installations.
Committee Meeting Action: Accept in Principle
Add new "Right" and "Wrong" annex drawings to annex A.4.14.9.

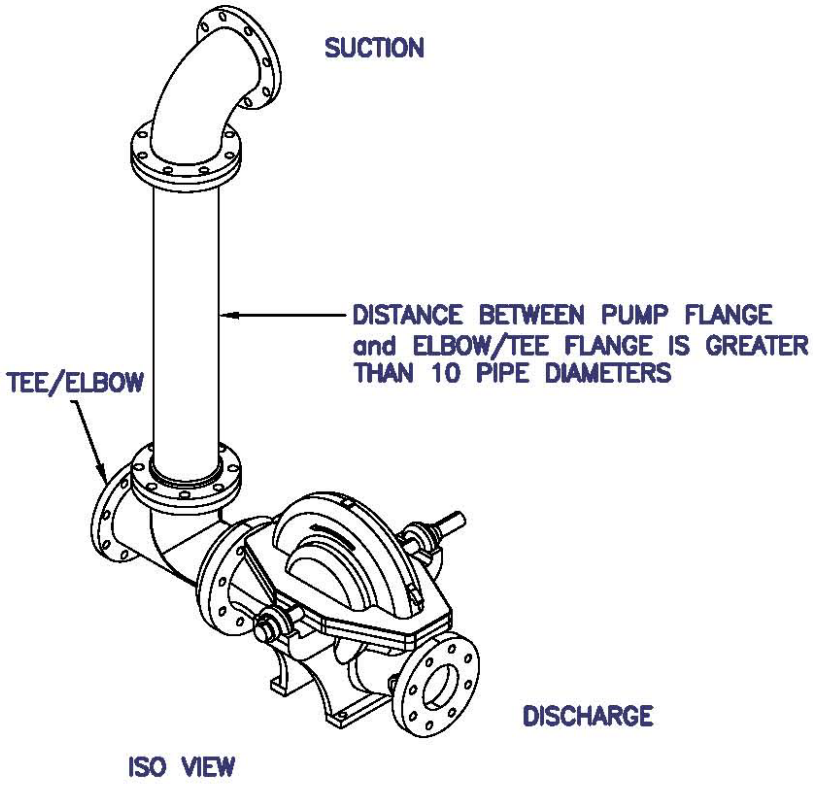
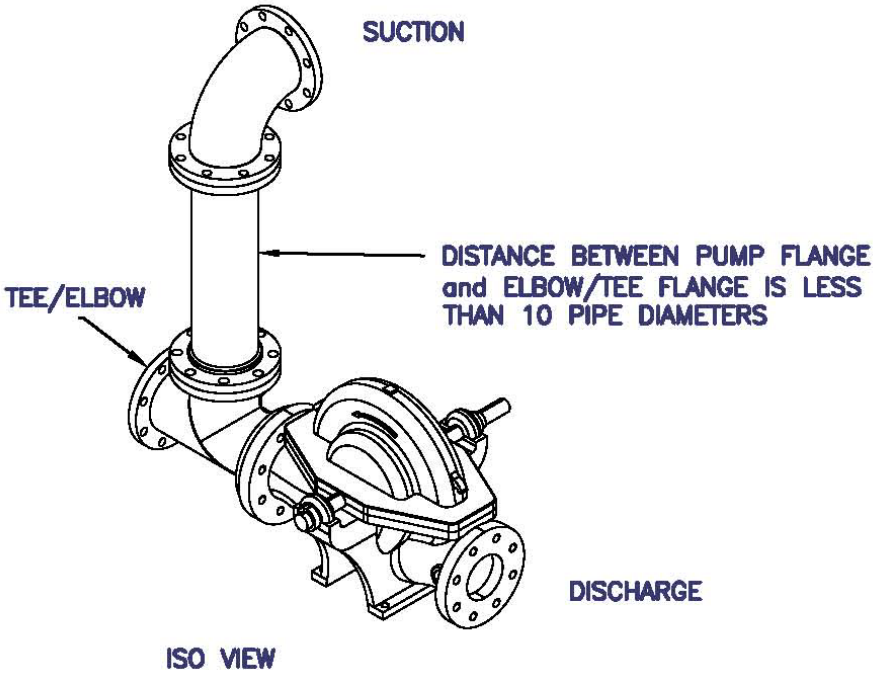
****Insert 20_L40_Annex A.4.14.9 Drawing Here****

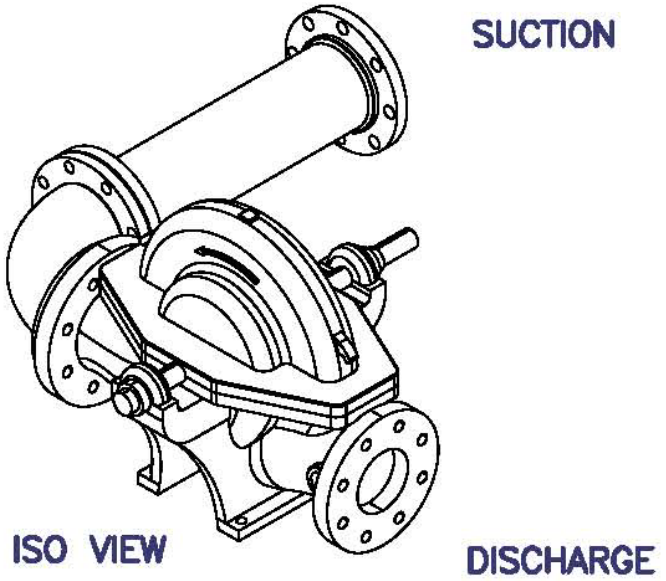
Remove existing drawings with exception of the top two containing the eccentric and concentric reducer.

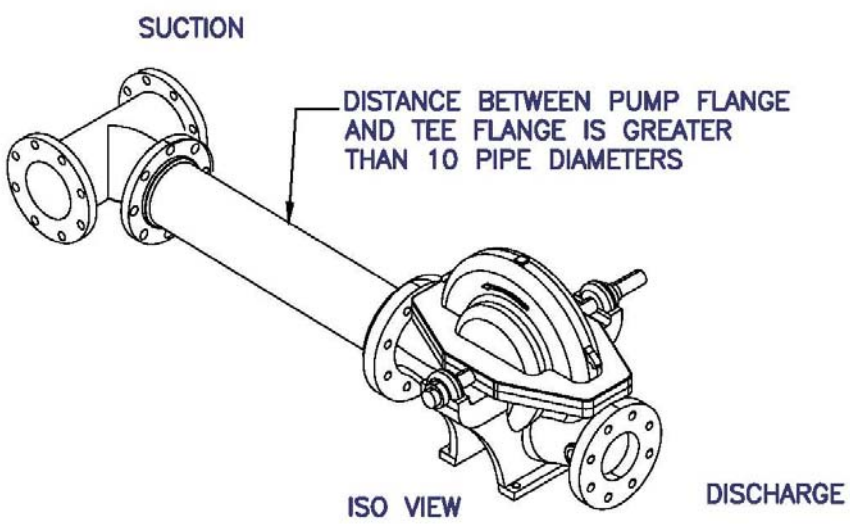
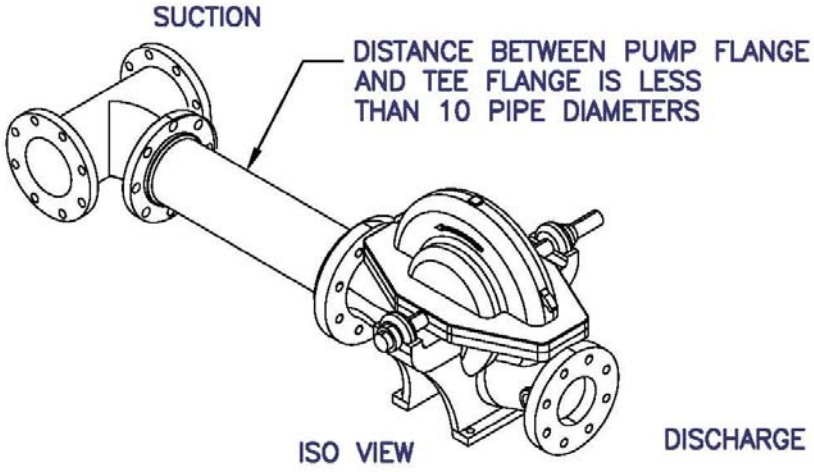
Committee Statement: New drawings provide clearer guidance.

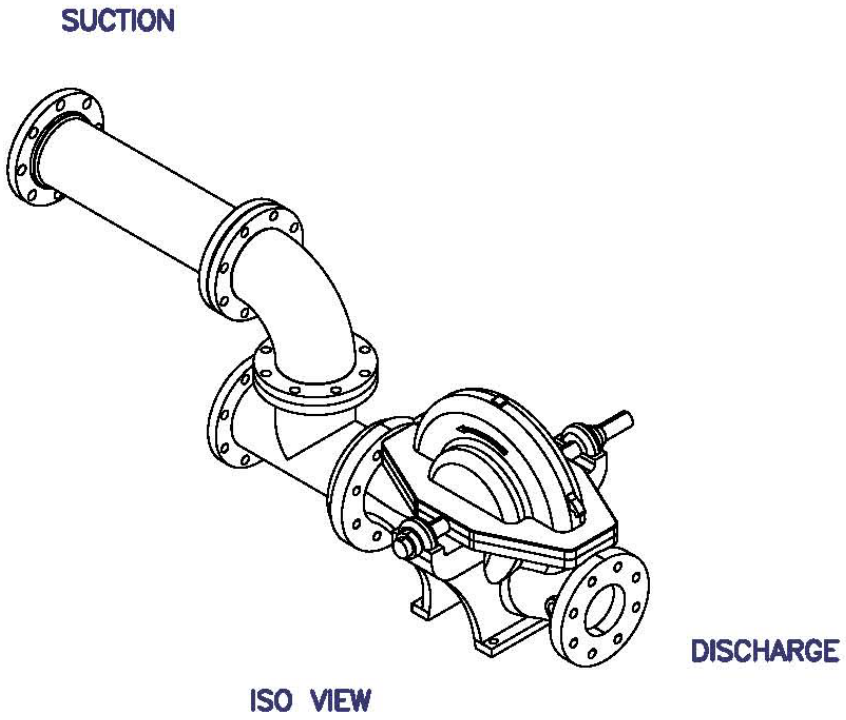
20-122 Log #93 Final Action: Accept in Principle
(A.4.15.9.3)

Submitter: Tracey D. Bellamy, Telgian Corporation
Comment on Proposal No: 20-239
Recommendation: Reconsider the proposal to relocate the Annex material to the body of the code and make the requirement mandatory.
Substantiation: By leaving the material within the Annex the inclusion of friction loss associated with a low suction throttling device would only be suggested rather than mandatory. The friction loss associated with these device can be significant and should be included as a mandatory requirements. As an example an 8 in. device would have on the order of a 7 psi loss. Such a loss is significant and should be a mandatory requirement.
Committee Meeting Action: Accept in Principle
Move annex section A.4.15.9.3 to the body of the document and make section 4.15.9.4 to read as follows:
~~A.4.15.9.3~~ 4.15.9.4 The friction loss through a low suction throttling valve in the fully open position ~~must~~ shall be taken into account in the design of the fire protection system.
Add new section 4.15.9.5 to read as follows:
4.15.9.5 System design shall be such that the low suction throttling valve will be in the fully open position at system design point.
Committee Statement: The annex language has been moved to the body of the standard and additional language has been added to provide guidance on how friction loss is to be calculated when a low suction throttling valve is to be used.

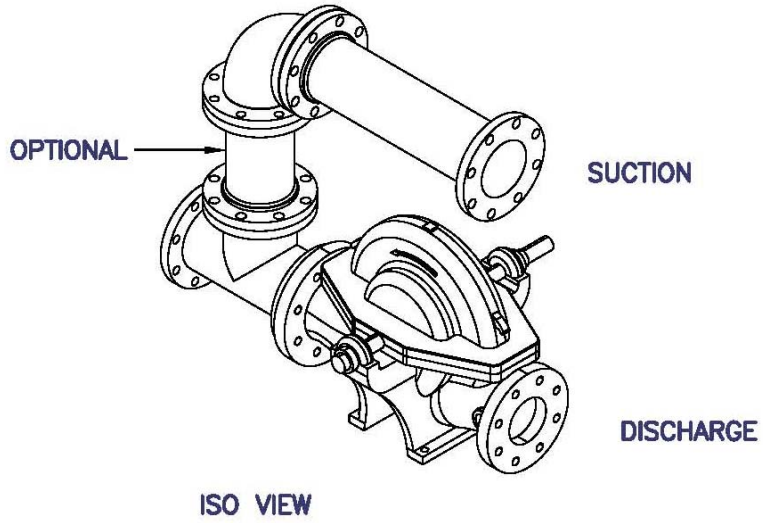
Right	Wrong
 SUCTION DISTANCE BETWEEN PUMP FLANGE and ELBOW/TEE FLANGE IS GREATER THAN 10 PIPE DIAMETERS TEE/ELBOW DISCHARGE ISO VIEW	 SUCTION DISTANCE BETWEEN PUMP FLANGE and ELBOW/TEE FLANGE IS LESS THAN 10 PIPE DIAMETERS TEE/ELBOW DISCHARGE ISO VIEW

Right	Wrong
	

Right	Wrong
 SUCTION DISTANCE BETWEEN PUMP FLANGE AND TEE FLANGE IS GREATER THAN 10 PIPE DIAMETERS ISO VIEW DISCHARGE	 SUCTION DISTANCE BETWEEN PUMP FLANGE AND TEE FLANGE IS LESS THAN 10 PIPE DIAMETERS ISO VIEW DISCHARGE


SUCTION
DISCHARGE
ISO VIEW

RIGHT


OPTIONAL
SUCTION
DISCHARGE
ISO VIEW

RIGHT

20-123 Log #CC4 Final Action: Accept
(Fig A.4.18.2.1)

Submitter: Technical Committee on Fire Pumps,
Comment on Proposal No: 20-241
Recommendation: Replace the current figure A.4.18.2.1 from proposal 20-241 with revised Figure A.4.18.2.1.

****Insert Figure A.4.18.2.1 Here****

Substantiation: Provided clarification with formulas.
Committee Meeting Action: Accept

20-124 Log #92 Final Action: Accept in Principle
(Figure A.4.25.5.5)

Submitter: Tracey D. Bellamy, Telgian Corporation
Comment on Proposal No: 20-52, 20-53
Recommendation: Change the symbol for the control valves on the suction and discharge side of the jockey pump to a new symbol labeled as “Indicating isolation valve”.
Substantiation: The Committee intent to allow any type of isolation valve within the suction and discharge piping as provided by 4.25.5.3 and 4.25.5.4 along with the requirement that the valves be indicating type by 4.25.5.5 should be reflected in Figure A.4.25.5.5.
Committee Meeting Action: Accept in Principle
Change symbol (Bow tie) Both sides of Jockey Pump. See new Drawing:

****Insert 20_Log#92_ Jockey pump bow tie change Here****

Committee Statement: Used symbol from NFPA 170

(FIGURE A.4.18.2.1 Sample Pressure Relief Valve Calculation)

Submitter: NFPA Committee
Comment on Proposal No: 20-CP11
Recommendation: Modify Figure A4.18.2.1 as follows:

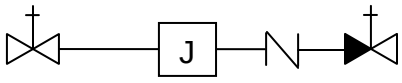
SAMPLE PRESSURE RELIEF VALVE CALCULATION DISCHARGE TO ATMOSPHERE For a 1500 gpm at 100 psi Fire Pump				
1. Pressure rating of the system components				175
2. Maximum pump over speed				110%
3. Pump size				1500
4. Rated pump pressure				100
			Normal Static Pressure (at rated speed)	**Maximum Pressure Static (at Max Pump Over speed)**
5. Pump net pressure (rated pressure at 100%)			100	121.0
6. Pump net churn pressure (0 flow)			120	145.2
7. Pump net pressure @ 150% of rated flow			65	78.7
8. Maximum static pressure at pump suction			50	50
9. Available flow at pump suction			1320	1320
10. Residual pressure at pump suction			45	45
11. Maximum pump discharge pressure at churn			170	195.2
12. Maximum allowable net discharge pressure				125
13. Pump flow rate at maximum net pressure adjusted to normal speed [#12/(#2*#2)] = 103.3 psi				1360.4
14. Required flow rate through the pressure relief valve (Pump flow rate at 125 psi and overspeed or (#13*#2)				1496.5
15. Set Pressure for pressure relief valve				175
16. Pressure relief valve size				4
17. Pressure relief valve pipe size				4.026
18. Nozzle (pipe) discharge coefficient				0.9
19. C factor				120
20. Pressure relief valve Cv (P=[Q/Cv]^2)				240
21 Pressure Relief Valve Fittings	**Type Fitting**	**Number of Fittings**	**Equivalent Length**	**Total Equivalent Length**
	45o	1	4	4
	Ells	2	10	20
	LRE	0	6	0
22.Pressure relief valve pipe length				30
23. Total equivalent length				54

24. Friction loss per foot in pipe at flow #14	0.594
25. Total loss in pressure relief valve piping (#23 x #24)	32.1
26. Friction loss in pressure relief valve at estimated flow (valve wide open) ([#14 / #20]^2)	38.9
27. Pressure at pressure relief piping discharge (#1 - #25 - #26)	104.1
28. Elevation difference (0.433*Elev difference in feet)	0
29. Required Pressure at relief piping discharge (pitot pressure at a flow of #14) ({#14 / [29.83 x #18 x #17^2]}^{2})	11.8
Conclusion: The discharge pressure at the pressure relief piping (with the pressure relief valve wide open) exceeds the pitot pressure required for the flow: therefore the pressure relief components are adequately sized.	

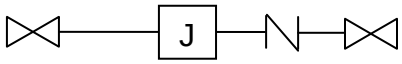
FIGURE A.4.18.2.1 Sample Pressure Relief Valve Calculation

Substantiation: Provides additional explanation and clarity.

Replace the portion of the figure under the fire pump that looks like this:



with the following:



and in the legend, add the following symbol


Isolation valve

20-125 Log #110 Final Action: Hold
(A.9.2.2 (New))

Submitter: Michael A. Anthony, University of Michigan / Rep. APPA.ORG - Leadership in Education/Association of Education Facility Executives
Comment on Proposal No: N/A
Recommendation: Add new text to Appendix A:

A.9.2.2 Fire protection requirements for multi-building campuses may be effectively met with centrally located fire pump facilities.

Substantiation: Where environmental conditions permit, modular, pre-packaged fire pump houses driven by diesel generators offer very significant advantages. Among them:

1. Recovery of interior enterprise space in all protected buildings.
2. A diesel generator for an electric fire pump provides an independent source of power.
3. Significantly lower first cost and operations and maintenance cost.

There are trade-offs. Despite them, we would like to see centralized, multi-building sprinkler systems tracking more explicitly in this document. It is recognized that this comment will be held over until the next revision cycle because it presents the committee a new concept.
Committee Meeting Action: Hold
Committee Statement: The language introduces new text that is not tied to a proposal and will be held over until the next cycle.

20-126 Log #111 Final Action: Reject
(A.9.3.1.1)

Submitter: Michael A. Anthony, University of Michigan / Rep. APPA.ORG - Leadership in Education/Association of Education Facility Executives
Comment on Proposal No: 20-94
Recommendation: Modify the proposed language to be an Annex item for the 2013 revision of NFPA 20 to give the engineering community time to settle the science of reliability at the fire pump level and to acclimate utilities, public utility commissions and authorities having jurisdiction to a numerical criterion to inform the basis of the AHJ decision . Delete all the introductory material of A.9.3.1 and move to NFPA 110 as described in related comment. Replace all the remaining text with the following:

A.9.3.1.1 In the assessment of primary power reliability, consideration shall be given to the following:

a) The historical performance of the primary supply as described in A.9.3.2

b) System Average Interruption Duration Index (SAIDI). A weighted average rating with Major Events included of 200 or greater is recommended .

c) System Average Interruption Duration Index (SAIFI). A weighted average rating of 1.2 or greater with Major Events included is recommended.

The availability and applicability of these reliability indices for primary (normal) power varies widely among utilities. Their evaluation with respect to alternative sources of power (such as on-site generation), and single points of failure along the fire pump power supply chain, should be undertaken with guidance by a reliability engineering professional.

Substantiation: It is wise to have set up a Task Force to examine this proposal in detail. Everyone would like to have a single number -- basically a "Go", "No-Go" criterion -- about whether you can tap ahead of the main breaker or require an on-site generator for all low and high rise buildings but it is too early for a hard-edged requirement.

Reliability for the so-called "last mile" of distribution is neither settled science within the various IEEE working groups, nor does it track uniformly across 50-states. There are also many different ownership regimes and operating configurations for primary source providers that complicate delivery of this information; apart from the large district energy systems in US colleges and universities that are not bound to producing IEEE reliability indices at all.
Committee Meeting Action: Reject
Committee Statement: The approach proposed in this comment is the same as that submitted in Proposal 20-94, which does not capture all of the variables that the Committee feels are necessary in determining if a second source of power is required. The Task Group will continue to work into the next revision cycle on this issue to see if yes/no criteria can be developed that is both definitive and comprehensive. It is also noted that the data necessary for the proposed evaluation is not generally available for all utilities.

20-127 Log #126 Final Action: Accept in Principle
(A.9.3.2(2))

Submitter: John Whitney, Clarke Fire Protection Products
Comment on Proposal No: 20-94
Recommendation: Revise text to read as follows:

A.9.3.2 (2) ~~No power outages have been experienced in the area of the protected facility caused by failures in the power grid that were not due to natural disasters or electric grid management failure.~~ The standard does not require that the normal source of power is infallible. NFPA 20 does not intend to require a back-up source of power for every installation using an electric motor-driven fire pump. ~~Should the normal source of power fail due to a natural disaster (hurricane) or due to a problem with electric grid management (regional blackout), the fire protection system could be supplied through the fire department connection.~~ Some power sources have high reliability, however, ~~However,~~ if the power source in question ~~grid~~ is known to have had reliability problems, for any reason in the past ~~(i.e., switch failures or animals shorting a substation)~~, ~~it is reasonable to require~~ , depending upon the risk at the protected facility a backup source of power may be considered.

Substantiation: It is unfortunate that guidance cannot be provided to the AHJs in this next revision of this standard for a reliable power source. I am hopeful that the TG established on this subject at the ROP will be continued through to the next cycle and means will be found to provide the badly needed guidance within this standard at that time.

In the mean time, this year is a reminder that it is totally un-reasonable to exclude natural disasters or any cause of power source failure when determining power source reliability. Whether the power source failure is due to natural disaster, electric grid management or other, it should be the frequency and duration of the failures that needs to be used to determine power source reliability not the cause of failure. Relying on the fire department connection during a natural disaster is likely wishful thinking; the fire department during a natural disaster will already be over taxed with other activities.

Committee Meeting Action: Accept in Principle
Revise section A.9.3.2(2) to read as follows:

(2) ~~No~~ power outages have not routinely been experienced in the area of the protected facility caused by failures in generation or transmission ~~the power grid that were not due to natural disasters or electric grid management failure~~. The standard is not intended to require ~~does not require~~ that the normal source of power ~~is~~ be infallible to deem the power reliable. NFPA 20 does not intend to require a back-up source of power for every installation using an electric motor–driven fire pump. Note that ~~S~~should the normal source of power fail in a rare event~~due to a natural disaster (hurricane) or due to a problem with electric grid management (regional blackout)~~, the impairment procedures of NFPA 25 could be followed to mitigate the fire risk. If a fire does occur during the power loss, the fire protection system could be supplied through the fire department connection. ~~However, if the power grid is known to have had problems in the past (i.e., switch failures or animals shorting a substation), it is reasonable to require a backup source of power.~~

Committee Statement: The Committee agrees that areas with more frequent natural disasters should consider this factor in determining reliability of the normal power supply. At the same time, the wording needs to be such that AHJ's do not end up believing the standard requires a second source of power in all areas where there may only be rare/infrequent power outages due to natural disasters. The Committee feels there are numerous variables that are necessary to consider when determining if a second source of power is required, and the Task Group will continue to work into the next revision cycle on this issue to see if yes/no criteria can be developed that is both definitive and comprehensive.

20-128 Log #118 Final Action: Accept in Principle
(A.9.5.1.4 (New))

Submitter: James S. Nasby, Skokie, IL
Comment on Proposal No: 20-97
Recommendation: Add new Annex item to read:
A.9.5.1.4 Where listed inverter duty fire pump motors are not available, the motor shall be rated and marked for inverter duty. This is because variable fire pump motors must be of the inverter duty type for the installation to be reliable. Inverter duty motors have higher insulation voltage rating, suitable temperature rise rating and protection form bearing damage.
Substantiation: There are not yet any listed inverter duty fire pump motors. I have seen a number of variable speed installations with a listed fire pump motor which is NOT inverter duty rated. These installations are very problematic regarding long term reliability since the motor may be damaged but not completely failed leaving an incipient defect which may become a failure during a fire fighting run. This annex may be deleted when listed inverter duty fire pump motors exist.
Committee Meeting Action: Accept in Principle
Revise section A.9.5.1.4 as follows: delete first sentence and "This is because" of the second sentence.
A.9.5.1.4 ~~Where listed inverter duty fire pump motors are not available, the motor shall be rated and marked for inverter duty. This is because~~ v<u>V</u>ariable fire pump motors must be of the inverter duty type for the installation to be reliable. Inverter duty motors have higher insulation voltage rating, suitable temperature rise rating and protection form bearing damage.
Committee Statement: Annex material has been revised to remove the requirement in accordance with the manual of styles.

20-129 Log #4 Final Action: Accept
(A.10.8.3.11)

Submitter: Vince Baclawski, National Electrical Manufacturers Association (NEMA)
Comment on Proposal No: 20-252
Recommendation: Revise text to read as follows:
A.10.8.3.11 Internal protection refers to any tripping elements contained within <u>the switching mechanism of the</u> ~~molded case style~~ transfer switch~~es~~. This is to <u>prevent</u> ~~avoid~~ a switch<u>ing mechanism</u> from inhibiting transfer of ~~tripping leaving no~~ power ~~available in the absence of the other source.~~
Substantiation: Revised text aligns with the proposed clarification of 10.8.3.11.
Committee Meeting Action: Accept

20-130 Log #101 Final Action: Accept
(Figure A.11.4.4)

Submitter: Tracey D. Bellamy, Telgian Corporation
Comment on Proposal No: 20-178
Recommendation: Revise the descriptor for the control valve in the fuel line connection to the fuel tank as follows:
Manual cock valve, locked open ~~or central station supervised.~~
Substantiation: With the Committee statement that the appropriate supervision is to lock the valve in the open position rather than to allow either locking or electronic supervision, the descriptor for the valve in Figure A.11.4.4 should be modified to match.
Committee Meeting Action: Accept

20-131 Log #41 Final Action: Accept
(Figure A.14.2.5.4)

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.
Comment on Proposal No: 20-259
Recommendation: Reject Proposal 20-259 and replace the existing NFSA form with an updated NFSA form using the updated requirements of the 2013 edition as developed by the changes in the ROP and ROC.
Substantiation: The form printed in the ROP is not the same form as the one in the committee ballot. There are a number of problems with the form in the ROP:

1. There is no page 1, all of the information before part III of the form is missing.
2. Page 2 is printed twice.
3. The form forces the user to perform tasks or answer questions that are not required by NFPA 20. For example:

a. Part III. E. of the form makes you think the AHJ has to be present, but section 14.2.2 does not make this a requirement.
b. For the flow tests (Part V), 6 data points are requested, yet section 14.2.5.2.3 only requires 3 points.
c. For Part V. H., the velocity head is required to be calculated. Where is this in NFPA 20?

4. The form (page 5) shows data from a pump test. The form is blank, so where did this data come from?
5. The form is too long. Five pages is too much for this data. A good form could consolidate the important information to two pages.

The National Fire Sprinkler Association will be happy to update their form to meet the current requirements of NFPA 20 and allow the NFPA to print it in NFPA 20 as long as the NFSA does not have to give up ownership of the form.
Committee Meeting Action: Accept
Insert NFSA form

****Insert 20_L41_NFSA Form Here****

Committee Statement: The form accepted at the ROP stage needs more corrections than can be addressed in the current cycle. The generic form will be updated and resubmitted in the next cycle.

20-132 Log #55 Final Action: Accept
(Figure A.14.2.5.4)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Comment on Proposal No: 20-259
Recommendation: Reject proposal 20-259 (Log #53).
Substantiation: The submitted sample form is not a "… correct NFPA form ..." as the submitter seems to imply, but is a form used by one fire pump vendor.
There is nothing wrong with the current sample form as long as it is updated to the new requirements of NFPA 20. If the NFPA chooses to develop a fire pump acceptance test form, then that can be inserted in the document. Otherwise the existing sample form should continue to be used.
This comment is being submitted by the Tyco Codes and Standards Sprinkler Task Group.
Committee Meeting Action: Accept
Committee Statement: See Committee action 20-121 (Log#41).

Centrifugal Fire Pump Acceptance Test Form

Information on this form covers the minimum requirements of NFPA 20-2013 for performing acceptance tests on pumps with electric motors or diesel engine drivers. Other forms are available for periodic inspection, testing and maintenance.

NFSA The Voice of the Fire Sprinkler Industry

Owner: _____
Owner's Address: _____
_____
Property on which pump is installed: _____
_____
Property Address: _____
_____
Date of Test: _____
Demand(s) of Fire Protection Systems Supplied By Pump:
_____

Pump: ❑ Horizontal ❑ Vertical
Manufacturer: _____ Shop/Serial Number: _____
Model or Type: _____
Rated GPM _____ Rated Pressure _____ Rated RPM _____
Suction From _____ If Tank, Size and Height _____
Driver: ❑ Electric Motor ❑ Diesel Engine
Manufacturer: _____ Shop/Serial Number: _____
Model or Type: _____
Rated Horsepower: _____ Rated Speed: _____
If Electric Motor, Rated Voltage _____ Operating Voltage _____
Rated Amps _____ Phase Cycles _____ Service Factor _____
Controller Manufacturer: _____
Shop/Serial Number: _____ Model or Type: _____
Jockey Pump on System? ❑ Yes ❑ No Settings: On ____ Off ____

All questions are to be answered Yes, No or Not Applicable. All No answers are to be explained in the comments portion of this form.

I. Flush Test *(Conduct before Hydrostatic Test)*

Suction piping was flushed at _____ gpm? ❑Yes ❑ No ❑ N/A
(See Table 14.1.1.1 of NFPA 20.)
Certificate presented showing flush test? ❑Yes ❑ No ❑ N/A

II. Hydrostatic Test

Piping tested at _____ psi for 2 hours? ❑Yes ❑ No ❑ N/A
(*Note: NFPA 20 requires 200 psi or 50 psi above maximum system pressure whichever is greater.*)
Piping passed test? ❑Yes ❑ No ❑ N/A
Certificate presented showing test? ❑Yes ❑ No ❑ N/A

III. People Present

Were the following present to witness the test:
A. Pump manufacturer/representative ❑Yes ❑ No ❑ N/A
B. Engine manufacturer/representative ❑Yes ❑ No ❑ N/A
C. Controller manufacturer/representative ❑Yes ❑ No ❑ N/A
D. Transfer switch manufacturer/rep. ❑Yes ❑ No ❑ N/A
E. Authority having jurisdiction/rep. ❑Yes ❑ No ❑ N/A

IV. Electric Wiring

Was all electric wiring including control interwiring for multiple pumps, emergency power supply, and the jockey pump completed and checked by the electrical contractor prior to the initial start-up and acceptance test? ❑Yes ❑ No ❑ N/A

V. Flow Test

Run the pump at no-load, rated load and peak load (usually 150% of rated load) conditions. For variable speed drivers, run the test with the pressure limiting control "on" at 25, 50, 75, 100, 125 and 150% of rated load and then again at rated speed with the pump isolated from the fire protection system and the relief valve closed.

A. Was the manufacturers' certified pump test curve available for comparison to the acceptance test? ❑Yes ❑ No ❑ N/A
B. Equipment and gages calibrated? ❑Yes ❑ No ❑ N/A
Date of last calibration: _____
C. If dry charge batteries were supplied, was electrolyte added at least 24 hours prior to engine start and were batteries given a conditioning charge? ❑Yes ❑ No ❑ N/A

D. For each test, record the following for each load condition:

Test	Driver Speed	Suction Pressure	Discharge Pressure	Nozzle Size	Pitot Readings or Flow					
	rpm	psi	psi	inch	1	2	3	4	5	6
0				N/A						
100%										
150%										

E. For electric motor driven pumps also record:

Test	Voltage	Amperes
0		
100%		
150%		

F. Calculate Net Pressures and Total Flow

$P_{Net} = P_{Discharge} - P_{Suction}$ | $Q = 29.83\ cd^2\sqrt{P}$

Test	Net Pressure	Flow (Q) (use formula above)						Total Flow
		1	2	3	4	5	6	
0								
100%								
150%								

G. For electric motors operating at rated voltage and frequency, is the ampere demand on each phase less than or equal to the product of the full load ampere rating times the allowable service factor as stamped on the motor nameplate? ❑ Yes ❑ No ❑ N/A
H. For electric motors operating under varying voltage:
1. Was the product of the actual voltage and current demand on each phase less than or equal to the product of the rated full load current times the rated voltage times the allowable service factor? ❑Yes ❑ No ❑ N/A
2. Did the voltage stay within the range of 95 to 110% of the rated voltage during the test? ❑ Yes ❑ No ❑ N/A
I. Did engine-drive unit show no signs of overload or stress? ❑Yes ❑ No ❑ N/A
J. Was the governor set to properly regulate the engine speed at rated pump speed? ❑ Yes ❑ No ❑ N/A
K. Did the gear drive assembly operate without excessive objectionable noise, vibration or heating? ❑ Yes ❑ No ❑ N/A
L. Was the unit started and brought up to rated speed without interruption under discharge conditions equal to peak load? ❑Yes ❑No ❑ N/A
M. Did the fire pump perform equal to the manufacturer's curve within the accuracy limits of the test equipment? ❑ Yes ❑ No ❑ N/A
N. Did the unadjusted performance discharge curve meet or exceed the fire protection system demand(s)? ❑ Yes ❑ No ❑ N/A
O. No vibrations that could potentially damage any fire pump component? ❑Yes ❑ No ❑ N/A
P. The fire pump performed at all conditions without objectionable overheating of any component? ❑ Yes ❑No ❑N/A
Q. Electric motor pumps passed phase reversal test on normal and alternate (if provided) power? ❑ Yes ❑ No ❑ N/A
R. If a break tank is provided, was the refill mechanism tested 5 times and did it operate correctly? ❑ Yes ❑ No ❑ N/A

Record refill rate: _____

S. For vertical turbine pumps taking suction from wells, is the water level capable of being recorded? ❑ Yes ❑ No ❑ N/A

VI. Controller Test

A. Did the pump start at least 6 times from automatic sources? ❑ Yes ❑ No ❑ N/A

B. Was each automatic starting feature tested at least once? ❑ Yes ❑ No ❑ N/A

C. Did the pump start at least 6 times manually? ❑Yes ❑No ❑N/A

D. Was the pump run for at least 5 minutes during each of the operations in Parts A, B and C above? ❑ Yes ❑ No ❑ N/A

(Note: An engine driver is not required to run for 5 minutes at full speed between successive starts until the cumulative cranking time of successive starts reaches 45 seconds.)

E. Were the starting operations divided between both sets of batteries for engine-driven controllers? ❑ Yes ❑ No ❑ N/A

F. Electric Driven Pump Controllers

1. Were all overcurrent protective devices (including the controller circuit-breaker) selected, sized and set in accordance with NFPA 20? ❑ Yes ❑ No ❑ N/A
2. Was the fire pump started at least once from each power service and run for at least 5 minutes? ❑ Yes ❑ No ❑ N/A
3. Upon simulation of a power failure, while the pump is operating at peak load, did the transfer switch transfer from the normal to the emergency source without opening over-current protection devices on either line? ❑ Yes ❑ No ❑ N/A
4. When normal power was restored, did retransfer from emergency to normal power occur without overcurrent protection devices opening on either line? ❑ Yes ❑ No ❑ N/A
5. Were at least half of the automatic and manual starts required by Parts A and C performed with the pump connected to the alternate source? ❑ Yes ❑ No ❑ N/A

G. Were all signal conditions simulated demonstrating satisfactory operation? ❑ Yes ❑ No ❑ N/A

H. Was the pump run for at least 1 hour total during all of the above tests? ❑ Yes ❑ No ❑ N/A

I. For engines with ECM fuel management systems, primary and alternate ECM passed function test? ❑ Yes ❑ No ❑ N/A

VII. Information For Owner

Was the owner given all of the following? ❑ Yes ❑ No ❑ N/A

A. A manual explaining the operation of all components.
B. Instructions for routine maintenance and repairs.
C. Parts list and parts identification.
D. List of recommended spare parts and lubricants to keep on hand.
E. Schematic electrical drawings of controller, transfer switch and alarm panels.
F. Manufacturer's certified shop test curve or acceptance test curve.

VIII. Tester Information

Tester: _____

Company: _____

Company Address: _____

I state that the information on this form is correct at the time and place of my test, and that all equipment tested was left in operational condition upon completion of this test except as noted in the comments section below.

Signature of Tester: _____

Date: _____

License or Certification Number if Applicable: _____

IX. Comments *(Any "No" answers, test failures, or other problems must be explained here.)*

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Pump Test Results

Pressure (psi, fill in scale)

Amperes (for electric driven pumps) (fill in scale)

Flow (gpm, fill in scale)

20-133 Log #115 Final Action: Accept
(A.14.2.10)

Submitter: Michael A. Anthony, University of Michigan
Comment on Proposal No: 20-261
Recommendation: Accept-in-Principle with the modification as shown below:.
A.14.2.10. It is not the intent to discharge water for the full 1 hour test duration, provided all flow tests can be conducted in less time and efforts are taken to prevent the pump from overheating.
Substantiation: Clarity may be in the eye of the beholder. Here is the existing text:
[14.2.10 Test Duration. The fire pump or foam concentrate pump shall be in operation for not less than 1 hour total time during all of the foregoing tests.]
I can say upon some authority that many jurisdictions in our industry -- which includes some 98,916 K-12 public schools, 33,336 private schools, 4352 four-year degree granting institutions (of which 1100 are community colleges) -- are interpreting this passage to mean that water must be run a full hour through the pump even though the 5-point test may be accomplished in half that time.
That's the equivalent of two average sized residential swimming pool's worth of water. This water comes from the city water supply and dispensed back through the city sewer system, every year, for every building in our industry that has a fire pump. And there are plenty of them. Therefore, we support the submitter's claim because instead of using two swimming pool's worth of water, we would only need one swimming pool's worth of water every year.
I think the problem in understanding the intent of this committee lies in how the user reads "total time" and "foregoing". Either re-write the enforceable part of this section to clarify the committee's intent or add this annex item. The intent of the new text is to reduce the amount of water that is discharged needlessly to the environment without compromising the requirements of Section 14.2 Acceptance of this proposal contributes mightily to our nation's sustainability (so-called "green") ambitions with negligible increase in risk.
This is not original material; its reference/source is as follows:
Josh Evolve, US General Services Administration.
Committee Meeting Action: Accept

20-134 Log #48 Final Action: Accept
(C.1.2.7)

Submitter: John F. Bender, Underwriters Laboratories Inc.
Comment on Proposal No: 20-263
Recommendation: Revise text as follows:
C.1.2.7 UL Publications. Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, IL 60062-2096.
ANSI/UL 508, Standard for Safety Industrial Control Equipment, 1999, Revised 2010.
ANSI/UL 1008, Standard for ~~*Transfer Switch Equipment*~~ *Safety for Transfer Switch Equipment* ~~Automatic Transfer Switches, 1996, Revised 2008~~ 2011.
Substantiation: Reason: Update title and referenced edition of ANSI/UL 1008 to most recent revision.
Committee Meeting Action: Accept

20-135 Log #49 Final Action: Accept
(C.2.1)

Submitter: John F. Bender, Underwriters Laboratories Inc.
Comment on Proposal No: 20-264
Recommendation: Revise text as follows:

C.2.1 UL Publications. Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, IL 60062-2096.
ANSI/UL 80, Standard for Steel Tanks for Oil Burners Fuels and Other Combustible Liquids, 2007, Revised 2009.
UL 2080, Standard for Fire Resistant Tanks for Flammable and Combustible Liquids, 2000.
ANSI/UL 2085, Standard for Protected Aboveground Tanks for Flammable and Combustible Liquids, 1997, Revised ~~1999~~ 2010.

Substantiation: Reason: Update referenced standard to most recent edition.
Committee Meeting Action: Accept