Tentative Interim Amendment

NFPA® 25

Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems

2017 Edition

Reference: Various
TIA 17-2
(SC 17-12-1 / TIA Log #1287)

Pursuant to Section 5 of the NFPA *Regulations Governing the Development of NFPA Standards*, the National Fire Protection Association has issued the following Tentative Interim Amendment to NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, 2017 edition. The TIA was processed by the Technical Committee on Inspection, Testing, and Maintenance of Water-Based Systems, and was issued by the Standards Council on December 6, 2017, with an effective date of December 26, 2017.

A Tentative Interim Amendment is tentative because it has not been processed through the entire standards-making procedures. It is interim because it is effective only between editions of the standard. A TIA automatically becomes a public input of the proponent for the next edition of the standard; as such, it then is subject to all of the procedures of the standards-making process.

1. Add NFPA 70E®, Standard for Electrical Safety in the Workplace®, 2015 edition to section 2.2.

2. Revise 4.9.6 and associated Annex A material to read as follows:

4.9.6* Electrical Safety.

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

4.9.6.2 At a minimum, the provisions of NFPA 70E shall be applied.

A.4.9.6 WARNING: NFPA 20 includes electrical requirements that discourage the installation of a disconnect means and limit overcurrent protection in the power supply to electric motor–driven fire pumps. This is intended to ensure the availability of power to the fire pumps. Where equipment connected to those circuits is serviced or maintained, the service person could be subject to unusual exposure to electrical and other hazards. It could be necessary to establish special safe work practices and to use safeguards or personal protective clothing, or both. The required category of personal protective equipment will vary dependent upon the specific installation details and associated incident energy levels. The determination of such incident energy levels can be established by conducting an incident energy level analysis as provided in Annex D of NFPA 70E or by utilization of the PPE Category Method provided by NFPA 70E, Table 130.7(C)(15)(A)(b), where applicable. Use of the PPE Category Method requires that the maximum available short-circuit current and maximum fault clearing time for the actual installation do not exceed those indicated in NFPA 70E, Table 130.7(C)(15)(A)(b). See ~~also~~ *NFPA 70E* for ~~additional safety~~ guidance regarding the determination of the incident energy and the required level of personal protective equipment. The provisions of NFPA 70E require that the owner label the equipment with information

regarding the electrical hazards associated with the installation. Where such labeling is not present, the technician cannot make a determination for safe work practice on the equipment without further assessment of the incident energy associated with the installation.

3. Revise sections in 8.1.1.2 to read as follows:

8.1.1.2.2 Electrical connections shall be checked annually and repaired as necessary to the extent that such work can be completed without opening an energized electric motor–driven fire pump controller.

8.1.1.2.4 Printed circuit boards (PCBs) shall be checked annually for corrosion to the extent that such work can be completed without opening an energized electric motor–driven fire pump controller.

8.1.1.2.5 Cable and/or wire insulation shall be checked annually for cracking to the extent that such work can be completed without opening an energized electric motor–driven fire pump controller.

8.1.1.2.6 Plumbing parts, both inside and outside of electrical panels, shall be checked annually for any leaks to the extent that such work can be completed without opening an energized electric motor–driven fire pump controller.

8.1.1.2.12 Engine crankcase breathers shall be checked ~~quarterly~~ annually.

8.1.1.2.16 All controls and power wiring connections shall be checked annually and repaired as necessary to the extent that such work can be completed without opening an energized electric motor–driven fire pump controller.

8.1.1.2.21 The accuracy of pressure gauges and sensors shall be inspected annually and replaced or recalibrated when more than 5 percent out of calibration to the extent that such work can be completed without opening an energized electric motor–driven fire pump controller.

4. Revise Table 8.1.1.2 to read as follows:

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

Item	Frequency	Reference
Inspection		
Alignment	Annually	8.3.6.4
Cable/wire insulation	Annually	8.1.1.2.5
Diesel pump system	Weekly	8.2.2(4)
Electric pump system	Weekly	8.2.2(3)
Engine crankcase breather	Annually	8.1.1.2.12
Exhaust system and drain condensate trap	Annually	8.1.1.2.13
Flexible hoses and connections	Annually	8.1.1.2.11
Fuel tank vents and overflow	Annually	8.1.1.2.10
Plumbing parts – inside and outside of panels	Annually	8.1.1.2.6
Printed circuit board corrosion (PCBs)	Annually	8.1.1.2.4
Pump	Weekly	8.2.2(2)
Pump house/room	Weekly	8.2.2(1)
Shaft movement or endplay while running	Annually	8.1.1.2.1
Steam pump system	Weekly	8.2.2(5)
Suction screens	Annually	8.3.3.~~7~~12

Item	Frequency	Reference
Test		
Automatic transfer switch and emergency/standby generators	Per NFPA 110	8.3.6.1 and 8.3.6.2
Diesel engine–driven fire pump	Weekly	8.3.1.1
Diesel fuel testing	Annually/Semiannually	8.3.4
Electric motor–driven fire pump	Weekly/monthly	8.3.1.2
Electronic control module (ECM)	Annually	8.3.3.13
Fire pump alarm signals	Annually	8.3.3.~~5~~10
Fuel tank, float switch, and supervisory signal for interstitial space	Quarterly	8.1.1.2.7
Main relief valve	Annually	8.3.3.~~3~~8
Power transfer switch	Annually	8.3.3.~~4~~9
Pump houseroom environmental conditions		8.3.6.3
Pump operation (no flow)	Weekly/monthly	8.3.1
Pump performance (flow)	Annually	8.3.3
Supervisory signal for high cooling water temperature	Annually	8.1.1.2.8
Maintenance		
Batteries	Annually	8.1.1.2.15
Circulating water filter	Annually	8.1.1.2.20
Control and power wiring connections	Annually	8.1.1.2 16
Controller	Per manufacturer	8.5
Diesel active fuel maintenance system	Annually or per manufacturer recommendation	8.3.4.3
Diesel engine system	Per manufacturer	8.5
Electric motor and power system	Per manufacturer	8.5
Electrical connections	Annually	8.1.1.2.2
Engine lubricating oil	Annually or 50 operating hours	8.1.1.2.17
Engine oil filter	Annually or 50 operating hours	8.1.1.2.18

Item	Frequency	Reference
Fuel tank – check for water and foreign materials	Annually	8.1.1.2.9
Measure back pressure on engine turbo	Annually	8.1.1.2.14
Pressure gauges and sensors	Annually	8.1.1.2.21
Pump and motor bearings and coupling	Annually or as required	8.~~5~~1.1.2.3
Sacrificial anode	Annually	8.1.1.2.19

5. Revise the Electrical System section of Table A.8.1.1.2 for the following line items to read as follows:

~~Tighten electrical connections as necessary~~		~~X~~	~~Annually~~
Calibrate pressure switch settings*		X	Annually
~~Voltmeter and ammeter for accuracy (5%)~~		~~X~~	~~Annually~~
Any corrosion on printed circuit boards (PCBs)*	X		Annually
Any cracked cable/wire insulation*	X		Annually
Any leaks in plumbing parts*	X		Annually
Any signs of water on electrical parts*	X		Annually

* Required only where the extent of such work can be completed without the opening of an energized electric motor–driven fire pump controller.

6. Revise 8.3.2.8(2) to read as follows:

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

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

(2) For pumps that use electronic pressure sensors to control the fire pump operation, record the current pressure and the highest and the lowest pressure shown on the fire pump controller event log where such information is available without having to open an energized electric motor–driven fire pump controller.

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

7. Delete 8.3.3.2.1 in its entirety, and revise 8.3.3.2.2, and renumber subsequent paragraphs to read as follows:

~~**8.3.3.2.1** Voltage and amperage readings on fire pump controllers that meet the following criteria shall be permitted in lieu of calibrated voltage and / or amperage meters:~~

~~(1) The fire pump controller shall have been factory calibrated and adjusted to ±3 percent.~~

~~(2) The voltage reading shall be within 5 percent of the rated voltage.~~

8.3.3.2.~~2~~1 ~~Except as permitted in 8.3.3.2.1, e~~Calibrated test equipment shall be provided to determine net pump pressures, rate of flow through the pump, ~~volts and ampere,~~ and speed.

8.3.3.2.~~2~~1.1 Calibrated …

8.3.3.2.~~2~~1.2 Gauges …

8.3.3.2.~~2~~1.3 Flow …

8. Revise 8.3.3.7(2)(a) to read as follows:

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

…

(2) At each flow condition, the procedure is as follows:

(a) Where an external means is provided on the controller, r~~R~~ecord the electric motor voltage and current (all lines).

(b) Record the pump speed in rpm.

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

9. Revise 8.3.3.9(3) to read as follows:

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

…

(3) While the pump is operating at peak load and alternate power, record the following to ~~voltage, amperage, rpm, suction pressure, discharge pressure, and flow rate and~~ include in the pump test results:

(a) The voltage where an external means is provided on the controller

(b) The amperage where an external means is provided on the controller

(c) The rpm

(d) Suction pressure

(e) Discharge pressure

10. Revise 8.3.3.10.1 and add new Annex A material to read as follows:

8.3.3.10.1* ~~Alarm conditions that require the controller to be opened in order to create or simulate the condition shall be tested by qualified personnel wearing appropriate protective equipment.~~ Alarm sensors located within electric motor–driven fire pump controllers that cannot be accessed without opening an energized electric motor–driven fire pump controller shall be tested at an alternative location outside of the controller.

A.8.3.3.10.1 Testing at an alternative location can include completion of a test at an external fire alarm monitor module used to monitor the sensors within the fire pump controller.

11. Revise 8.3.3.11 and associated Annex A material to read as follows:

8.3.3.11* Safety.

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

8.3.3.11.2 At a minimum, the provisions of NFPA 70E shall be applied.

A.8.3.3.11 See ~~also *NFPA 70E* for additional safety guidance~~ A.4.9.6.

12. Revise 8.3.7.2.5 through 8.3.7.2.9 to read as follows:

8.3.7.2.5 For electric motor–driven fire pumps operating at constant speed with an external means for reading the voltage and amperage on the controller, the current at each flow rate test point and at each phase shall not exceed the product of the electric motor service factor and the full-load amperage rating of the motor.

8.3.7.2.6 Where the measured current at each flow rate test point and at each phase exceeds the product of the electric motor service factor and the full-load amperage rating of the motor, the source of the problem shall be identified and corrected.

8.3.7.2.7 For electric motor–driven fire pumps operating at varying voltage with an external means for reading the voltage and amperage on the controller, the product of the test voltage and the current at each test point and on each phase shall not exceed the product of the voltage and the full-load current times the motor service factor.

8.3.7.2.8 Where the product of the measured test voltage and the measured current at each test point and at each phase exceeds the product of the voltage and the full-load current times the motor service factor, the source of the problem shall be identified and corrected.

8.3.7.2.9 Where measured, v~~V~~oltage readings at the motor within 5 percent below or 10 percent above the rated (i.e., nameplate) voltage shall be considered acceptable.

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