



Valley Regional Fire Authority Office of the Fire Marshal

2905 C Street SW, Auburn, WA 98001
 Phone: (253) 288-5870 ♦ Fax: (253) 288-5970
www.vrfa.org/FireMarshal ♦ Fire.Marshall@vrfa.org



Acceptance Testing/Inspection Checklist for:

Fire Pump Testing

This checklist is intended as a guide to assist customers with preparing for their inspections. We endeavor to keep all information updated, but the inspector/reviewer has ultimate authority to decide any issues. Please contact the VRFA to get specific information concerning your project.

Applicable Codes and Standards:

- COA– City of Auburn Municipal Code (2015)
- 2015 IFC– International Fire Code, 2015 Edition
- NFPA 13 – NFPA Standard for the Installation of Automatic Sprinkler Systems (2013)
- NFPA 24 – NFPA Standard for the Installation of Fire Service Mains (2010)

Inspection Basics:

Yes	No	Item	Code Section
		Building address posted and visible from the street?	2015 IFC: 505.1
		Applicable construction permit posted?	2015 IFC 105.3.5
		Approved plans on site?	2015 IFC 105.4.6

*If any of these are “No” – the inspection may be failed immediately

Key Information:

Yes	No	Item	Code Section
		If the fire pump is connected to the fire alarm system, has the monitoring company and Stafford County ECC been notified?	2015 IFC 901.7
		Does the “fire pump run” signal initiate a SUPERVISORY signal at the fire alarm panel?	2015 IFC 913.1
		Are the system pressures set up approximately as follows: <ul style="list-style-type: none"> • Jockey Pump Shut-Off: normal system pressure • Jockey Pump Activation: 10psi below system pressure • Fire Pump Activation: 20psi below system pressure • Fire Pump Shut-off: normal system pressure 	NFPA 20, 14.2.5
		Are all valves, name plates, access doors and components labeled appropriately? Ensure that the fire pump test header is clearly labeled with a sign showing: “Fire Pump Test Valve”	2015 IFC 509.1
		Is the pump room separated from the rest of the building by a 1 or 2 hour fire barrier? Does it have adequate heating, lighting, ventilation, access/clearances and drainage?	2015 IFC 913.2 2015 IFC 901.8
		Complete the fire pump test per NFPA 20 and the checklist provided below (The National Fire Sprinkler	2015 IFC 913.5

		Association Fire Pump Acceptance Test form).	
		Is the NFPA "Contractor's Material and Test Certificate for Underground Piping" completely filled out? Do not pas the inspection until a completed copy is available to the AHJ (this is typically the final inspection of the Underground Fire Line).	NFPA 13/24, 10.10.1

Yes	No		
		Is work and /or test approved by the VRFA?	
		Is further work and/or testing required? (see punch list below)	

Centrifugal Fire Pump Acceptance Test Form

Information on this form covers the minimum requirements of NFPA 20-2007 for performing acceptance tests on pumps with electric motors or diesel engine drivers. Other forms are available for periodic inspection, testing and maintenance.



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 Steam Turbine
 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 _____

Note: 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(a) 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" and then again at rated speed with the pump isolated from the fire protection system and the relief valve closed.

- A. Was a copy of the manufacturers' certified pump test characteristic curve available for comparison to the results of the acceptance test? Yes No N/A
- B. Equipment and gages calibrated? Yes No N/A
- C. No vibrations that could potentially damage any fire pump component? Yes No N/A
- D. The fire pump performed at all conditions without objectionable overheating of any component? Yes No N/A

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

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

F. For electric motor driven pumps also record:

Test	Voltage	Amperes
0		
100%		
150%		

G. Calculate Net Pressures and Total Flow

$$P_{Net} = P_{Discharge} - P_{Suction} \quad Q = 29.83 \text{ cd} \sqrt{P}$$

Test	Net Pressure	Flow						Total Flow
		1	2	3	4	5	6	
0		0	0	0	0	0	0	0
100%								
150%								

H. For electric motors operating at rated voltage and frequency, is the ampere demand 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

- I. For electric motors operating under varying voltage:
1. Was the product of the actual voltage and current demand 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. Was the voltage always less than 5% below the rated voltage during the test? Yes No N/A
 3. Was the voltage always less than 10% above the rated voltage during the test? Yes No N/A

J. Did engine-driven units show no signs of overload or stress? Yes No N/A

K. Was the governor set to properly regulate the engine speed at rated pump speed? Yes No N/A

L. Did the gear drive assembly operate without excessive objectionable noise, vibration or heating? Yes No N/A

M. Was the fire pump unit started and brought up to rated speed without interruption under the conditions of a discharge equal to peak load? Yes No N/A

N. Did the fire pump perform equal to the manufacturer's characteristic curve within the accuracy limits of the test equipment? Yes No N/A

O. Electric motor pumps passed phase reversal test on normal and alternate (if provided) power? 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 overcurrent 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 BCM fuel management systems, primary and alternate BCM 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. Schematic electrical drawings of controller, transfer switch and alarm panels.
 - E. 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



