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SOG Type: New SOG

# **Purpose:** To establish and provide guidelines for the service testing of nozzles and fire hose appliances in accordance with NFPA 1962.

# **Scope:** All Operations Personnel

# **Procedure:**

* 1. **Inspection**

Nozzles shall be visually inspected:

* After each use
* Weekly
* Anytime the nozzle is not operating per the manufacturers specifications or damage is suspected
* Prior to the annual service test

Appliances shall be visually inspected

* Quarterly
* Anytime the appliance is not operating per the manufacturers specifications or damage is suspected
* Prior to the annual service test

Inspection procedure

* Check for damage to the threads prior to attaching nozzle to male end of hose.
* Visually inspect the gasket to make sure it is present and not showing signs of deterioration.
* Verify the waterway is clear of obstructions
* Visually inspect the nozzle for any damage, and insure there is no damage to the tip.
* Check for proper movement of shutoff mechanisms, and insure the mechanism completely shuts off water under pressure.
* Inspect smooth bore nozzles to verify they are maintaining their round shape
* Check fog nozzles for correct water patterns in all modes, and verify no more than ¼ of the turbine teeth are missing.

If any damage is present that may affect the safe operation of the nozzle or appliance, it shall be red tagged and placed out of service until properly repaired and service tested.

**1.2 Nozzle and Appliance Records**

* A record for each nozzle and appliance shall be maintained by Logistics from the time of purchase until discarded.
* Each nozzle and appliance shall be assigned an identification number to aid in tracking its history
* Records shall include the following information:
  + Assigned identification number
  + Manufacturer
  + Model
  + Vendor
  + Warranty
  + Hose connection size
  + Maximum operating pressure
  + Flow rate/range
  + Date received
  + Date placed in service
  + Date of each test and service with the results
  + Damage and repairs including who made the repairs
  + Any reason removed from service
* Annual testing of nozzles and appliances shall be coordinated by Logistics.
* Nozzles or appliances found with damage or operational issues during the inspection/testing process shall be removed from service and tagged out

of service. The employee shall document the issue with a damaged property report, notify the warehouse via Manager’s +, and send the nozzle or appliance to the Warehouse to be repaired or replaced.

* 1. **Nozzle Testing**

Hydrostatic testing shall be conducted annually on all nozzles and appliances with a shut off valve.

Safety Requirements

* Minimum personal protective equipment required for nozzle and appliance testing is gloves, protective eyewear, and a helmet.
* High visibility safety vests must be worn anytime employees are operating in or near roadways.
* Mark the testing area with traffic safety cones in any area where there is a potential for motor vehicle or pedestrian traffic.
* Do not stand within 15 ft. of the nozzle or appliance during hydrostatic testing.
* Nozzle annual hydrostatic test in accordance with NFPA 1962
  1. Perform a visual inspection of the nozzle to be tested.
  2. Connect the nozzle to a portable monitor that is attached to a hose tester or apparatus pump.
  3. Bleed off all air from the system.
  4. Close the shutoff mechanism.
  5. Increase the pressure in 50 psi increments, and hold for 30 seconds between each pressure change. Repeat this process until 300 psi or 1.5 times the manufacturer’s max operating pressure is reached. Upon reaching the maximum pressure for the nozzle hold the pressure for 1 minute and inspect for any signs of leakage through the valve or shutoff.
* Nozzle annual flow test in accordance with NFPA 1962.
  1. Perform a visual inspection of the nozzle to be tested.
  2. Connect the nozzle to a portable monitor that has been equipped with a pressure gauge and a flowmeter. Insure that the monitor is attached to a hose tester or apparatus pump.
  3. Open the shutoff mechanism, and bleed the air until the nozzle reaches its minimum flow rate within ± 2%.
  4. Record the base pressure which should read within 15 psi of the rated pressure to continue.
  5. Increase the flow to the maximum rated flow and record the base pressure reading on the pressure gauge. The nozzle should maintain the rated pressure within 15 psi throughout the adjustment of the rated flow range.
* Nozzle discharge GPM’S should match flow chart from manufacturer to ensure proper flow.
  1. **Appliance Testing**

Hydrostatic testing shall be conducted annually on all appliances with a shut off valve.

* Shutoff Valve Test
  1. Attach the appliance to the appropriately sized hose.
  2. Place caps rated to at least 300 psi on all the openings of the appliance.
  3. Bleed all the air from the appliance and close the shutoff valve.
  4. Appliances with valves shall have the intake side tested to manufacturer’s maximum operating pressure with valve in closed position. Insure there are no leaks through the valve.
  5. Establish a water flow through the appliance at 100psi.
  6. Close and reopen the valve twice to insure the mechanism operates smoothly and functions properly.
* Appliance annual hydrostatic test in accordance with NFPA 1962
  + - * 1. With the pressure relief valve closed or removed and blanked off, attach the appliance to the appropriately sized hose.
        2. Place caps rated to at least 300 psi on all the openings of the appliance.
        3. Bleed all the air from the appliance and cover the appliance with a ballistic blanket.
        4. Insure the shutoff mechanism is closed and increase the pressure in 50 psi increments, holding for 30 seconds between each pressure change. Repeat this process until 300 psi is reached, and then hold the pressure for 1 minute.
* Relief Valve Testing

1. Mount the pressure relief valve to the test fixture.
2. Bleed all the air from the system, and then adjust the PRV to the lowest pressure setting.
3. Increase the pressure in the system until the PRV opens. The PRV should operate at or below 10% higher than the predetermined setting. Failure of this test requires repair of the PRV.

# **References**

NFPA 1962: Standard for the Care, Use, Inspection, Service Testing, and Replacement of Fire Hose, Couplings, Nozzles, and Fire Hose Appliances. (n.d.). Retrieved January 17, 2017, from <http://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards?mode=code&code=1962>

Cottrellassociates.com NFPA 1962 Update. (2014, January 14). Retrieved January 17, 2017, from http://www.bing.com/cr?IG=2031A702C1AE44F582B2B67B1E2AF010&CID=2EE2EE8414E067193345E48915D1661D&rd=1&h=\_ONXBIP3TW5Nm-t4GoyHwem1AivC6SEuOnyiP8o1vHM&v=1&r=http%3a%2f%2fcombatsupportproducts.com%2fcombat-support-products%2fewExternalFiles%2fNFPA%25201962.2013%2520Update%2520Show.pdf&p=DevEx,5133.1