
	STANDARD OPERATING GUIDELINE				
	EQUIPMENT				
	HYDRANT TESTING				
	Effective: 01/May/96	Revised: 01/Nov/2020	S.O.G. #: E-215	Page: 1 of 2	

1.0 Objective

1.1 The purpose of this guideline is to establish procedures for safe and consistent methods for testing fire hydrants.

2.0 Responsibility

2.1 It is the responsibility of all department personnel to understand the procedures documented in this Standard Operating Guideline.

3.0 General Testing Information

3.1 Hydrant testing is necessary for a number of reasons. They are:

- 3.1.1 To have an accurate idea of the water supplies we can expect in a given area to make tactical water supply decisions at a fire.
- 3.1.2 To allow the fire department to document the hydrants in need of repair or replacement.
- 3.1.3 To exercise the hydrants and their threads and keep the hydrants "loose".
- 3.1.4 To allow firefighting personnel to become familiar with the hydrant locations on the streets.
- 3.1.5 To maintain a record of available fire flow for insurance rate calculations, to determine sprinkler flow requirements in new construction, and to meet Insurance Services Office and other regulatory mandates.

3.2 All company officers should discuss hydrant functions, construction features, and the testing procedures with new personnel. Of particular importance should be discussions of safety in the testing procedures as well as the proper methods to reduce water hammer and resulting main breakage.

3.2.1 New personnel are advised to review Jones & Bartlett Fundamentals of Fire Fighter Skills Chapter 16: Water Supply.

3.3 Yearly hydrant testing is completed by an independent contractor hired by the City of Highland Park and recordings are noted in the cities GIS program. The contractor completes testing of half of all the hydrants each year. Additionally, a testing report will be provided to Highland Park Fire Department and Department of Public Works once testing is completed.

4.0 Testing Procedures

4.1 Check and record the hydrant address, number, and hydrant type.

4.2 Remove the caps and check all threads and gaskets for damage.

4.3 View the area around the hydrant to determine the best direction to flow the water so as to minimize damage to nearby landscaping. Usually, flowing the 2.5" port seems to yield somewhat more accurate testing figures. If need be, you may flow the steamer port but be sure to document this on your test report.

4.4 Flow the hydrant until the water runs clear. This is especially important in the case of dead end hydrants which are not part of a looped water main. Dead end hydrants are most commonly found at the end of driveways and private streets.

4.5 Close the hydrant.

4.6 Attach the static gauge and hydrant gate to the ports as well as the pitot / diffuser. If the pitot / diffuser is not available, connect the 30 degree elbow from the engine, if necessary, to divert the flow of water away from obstructions.

4.7 SLOWLY open the hydrant. You may either count the number of turns now or when closing the hydrant.

4.8 Open the hydrant gate SLOWLY and record the pitot and residual gauge readings on the test form.

4.9 SLOWLY close the hydrant gate. Closing the gate too rapidly can cause water hammer which can seriously damage the water main. Damage to the water main deprives the area of water service for both residential and fire service use.



STANDARD OPERATING GUIDELINE

EQUIPMENT

HYDRANT TESTING

Effective: 01/May/96

Revised: 01/Nov/2020

S.O.G. #: E-215

Page: 2 of 2



- 4.10 Record the static gauge reading.
- 4.11 Close the hydrant. This is almost always easier with the hydrant gate closed and no water flowing. If you didn't count the number of turns when opening, do so now.
- 4.12 Remove the gauges and check to make sure the hydrant drains. This is accomplished by placing one hand over the port and feeling the suction action of the draining process. If you don't feel the suction, inspect the hydrant barrel with a flashlight to see if the water level is dropping.
- 4.13 Lubricate the threads and replace the caps. Snug the caps up just enough with the hydrant wrench so the caps are resistant to tampering. DO NOT apply excessive force to tighten the caps.
- 4.14 Check your report form to make sure you have noted all readings and deficiencies.

5.0 Miscellaneous Test Information

- 5.1 New Hydrants - If you should run across a new hydrant you should:
 - 5.1.1 Note it on the report.
 - 5.1.2 Remove and properly dispose of the cap retainer chains with a bolt cutter.
 - 5.1.3 Flush the hydrant thoroughly since a considerable amount of gravel and other debris can find its way into the main during installation.
- 5.2 Private hydrants are not city owned or operated and testing of such hydrants should not occur. Private hydrants for fire suppression duties should be very limited, due to the uncertainty of the water main or hydrant condition.
- 5.3 Flow Calculations - If you are curious to see what the flow is from a particular hydrant, you can calculate the flow using the Freeman Formula. That formula is $29.7 \times \text{the diameter of the discharge port squared} \times \text{the square root of the pitot pressure}$
- 5.4 Resident Questions - Some residents may ask what effects this testing will have on their household water supply. You may tell them that their water may turn rusty for about an hour after the test is completed and that they should delay using their clothes washer until the water clears. This rust is non-toxic and will dissipate in a short period of time.

6.0 Reference

- 6.1 Highland Park Fire Department
- 6.2 Jones & Bartlett Fundamentals of Fire Fighter Skills Chapter 16: Water Supply
- 6.3 Insurance Services Office: Water Supply Evaluation
- 6.4 National Fire Protection Association: Standard 291: Chapter 4

Approved:  Fire Chief