



# Coffee Break Training - Fire Protection Series

## Administration: Evaluating Water Supply for Public Protection Class

No. FM-2015-5 February 3, 2015

**Learning Objective:** The student will get an overall understanding of the Water Supply section of the 2012 edition of the Fire Suppression Rating Schedule (FSRS) with regard to developing a Public Protection Classification (PPC™) of Classes 1-8.

The evaluation of the available water supply for a Fire Protection Area is part of all PPC gradings and accounts for a total of 40 points toward the grading. To achieve a PPC of Classes 1-8, the area must have a creditable water supply (at least 250 gallons per minute (gpm) for two hours plus maximum daily water consumption). A water supply survey must be conducted to make this determination. The fire protection and water supply requirements for Class 8B and Class 9 areas will be covered in another section.

During the water supply survey, an Insurance Services Office field representative will interview the official(s) responsible for the water department, water utility, or private water companies that supply the community. The representative will also:

- Review various documents and records.
- Evaluate all pump facilities.
- Determine needed fire flow (NFF) and hydrant test locations.
- Obtain hydrant flow-test results or hydraulic modeled flow-test data.
- Determine frequency of hydrant inspection and flow-testing programs.
- Examine representative hydrants.

Also reviewed are the details and records of all water supply facilities and operations. This will include gathering data on water storage, pumps, filter plants and system consumption. This is considered to determine the supply works capacity.

The representative will examine a current water utility map to identify the locations of:

- New and existing supply or storage facilities.
- Water mains.
- Pressure zones or service levels.
- Hydrants — Geographic Information System files for hydrants are very helpful in establishing proper credit.

Buildings of various sizes and hazard classifications throughout the community will be selected, and an NFF will be developed for each of those buildings. An NFF is the amount of water that should be available for providing fire protection. The NFF is compared to the water available through the supply works.

In addition to the above, Insurance Services Office evaluates the results of hydrant flow tests at selected locations. These tests should indicate the capacity of a water main when at a residual pressure of 20 pounds per square inch. Insurance Services Office will select the locations, considering:

- Geographic layout of the community.
- Topographical differences (elevation changes).
- Service levels or pressure zones.
- The range of NFFs for the buildings in the community.

Here is the breakdown of the 40 points that are available for water supply in the FSRS.

The creditable rate of flow at each NFF location is the lowest of NFF, supply works capacity, main capacity, or hydrant distribution. The 2012 FSRS credits up to 1,500 gpm for each hydrant within 1,000 feet of the NFF location. The total average creditable rate of flow is evaluated against the total NFFs to determine what percentage of 30 available points for the water supply system is credited.

There are three points available for hydrant size, type and installation, which can be prorated.

The remaining seven points in the Water Department section of the FSRS are based on the inspection and flow testing of hydrants. An annual inspection of all hydrants, which includes a flushing program and pressure test, will acquire four of the seven points. The other three points can be obtained if a fire flow-testing program (or main capacity test) is conducted on all parts of the distribution system every five years. These final seven points can be prorated. There is no credit if records of tests are not maintained.

In the next series of Coffee Break Training sessions, we will learn more about the Community Risk Reduction section of the FSRS.

The National Fire Academy's course information and registration is available at <http://www.usfa.fema.gov/index.shtm>.



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