

CITY OF ELGIN
Engineering Division of Public Works
Water Main Hydrostatic Pressure Testing Procedure
Revised June 22, 2009

Joseph [unclear]
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The following testing procedure is based in part on the standards of the American Water Works Association C600-05, effective Dec. 1, 2005. This procedure shall apply to all water mains to be owned and maintained by the City of Elgin AND privately owned water main that is looped to provide adequate fire protection. This policy does not apply to any service or piping between the public or private main and a structure.

1. **TESTING MAP:** The developer/contractor requesting the pressure test shall provide the City's Engineering Inspector a map (on 11" x 17" sheets) of the facilities (water mains, hydrants, valves, etc.) to be included during the test. The Engineering Inspector will then contact the Water Distribution Division of Public Works to assist the contractor in filling the water main for their preliminary pressure test. The testing map shall clearly identify all water structures (valve vaults, fire hydrants, auxiliary valves, etc.) and if they are to be open or closed during the test. All testing maps shall be dated along with the developers/contractors name and phone number. All water mains regardless of diameter or length fall under the requirements of this procedure.
2. **OVERALL MAP:** The Engineering Inspector shall maintain an overall map of the development or water main project with a legend to showing existing, proposed, tested and passed water mains.
3. **HYDROSTATIC PRESSURE TESTING EQUIPMENT:** All pressure testing equipment and labor necessary to setup and run the test shall be provided by the developer/contractor and shall include:
 - a. Pressure Gauge (maximum pressure of 250 pounds or as approved by the Engineering Inspector)
 - b. Pump
 - c. Tank
 - d. Fittings for the testing equipment to be connected to the water main
 - e. Accurate water volume measuring device (calibrated volumetric meter or 1 gallon graduated cylinder in ounces)
 - f. Winter protection for all equipment (must have when temperature is below 40 degrees.
 - g. Locking valve (see NOTES) with large diameter latch
4. **INITIAL VALVE CHECK & FILLING:** Prior to filling (with water) the section of water main that is being tested all valves need to be checked (either open or closed) as shown on the testing map (including opening all fire hydrant auxiliary valves). All City of Elgin water distribution system valves will be operated by the City's Water Distribution Division of the Water Department (847) 931-6026 or (847) 931-6098. Contractors **SHALL NOT OPERATE** any valves on an existing City water main or any water main that has been previously activated **WITHOUT WRITTEN** permission.

5. AIR REMOVAL: After filling the water main with water, air shall be expelled from the main by flushing water out of the main at fire hydrants and/or corporation cocks located at high points along the water main.
6. PRESSURIZATION: After all the air has been removed from the water main the main should be pressurized to 150 psi by pumping additional water into the water main. NOTE: THE PRESSURE GAUGE IS REQUIRED TO BE LOCATED AT THE HIGHEST POINT OF ELEVATION OF THE WATER MAIN. Once testing (150 psi or higher) pressure is obtained the pump should be shut off and timing started. The pressure gauge should be checked intermittently and the pressure reading recorded after two hours. If the pressure reading falls varies more than +/-5 psi from the starting pressure the test fails and will need to be redone after the leak has been found and addressed.
7. MAKE-UP VOLUME: If the pressure is maintained within the +/-5 psi range for the 2 hour test period, then the make-up volume shall be determined by pumping water back into the water main to reach the initial test pressure (please note that the developer/contractor will normally pump water into the main to increase the gauge pressure up to more than 150 psi, say 155 psi, and then they will bleed the pressure back down to the initial starting pressure). Once the initial starting pressure has been reached the bleed off valve will be opened and water will leave the system. The bleed off valve will be closed once the final 2 hour test period pressure is reached. All the water that leaves the system is to be measured via a volumetric meter or in a graduated container.
8. ALLOWABLE MAKE-UP VOLUME: The measured volume of "make-up" water is compared to the allowable make-up volume leakage from the City of Elgin – Water Main Pressure Test Form. If the water collected is **LESS** than the allowable make-up volume then the test **PASSES**. If the water collected is **MORE** than the allowable make-up volume the test **FAILS** and will need to be retested.
9. FINAL VALVE CHECK: Prior to bleeding off the pressure in the water main all hydrants on the testing map should be slowly opened to ensure that they had pressure against them during testing (slowly cracking open the valves will cause a slight movement of the needle on the pressure gauge due to the slight pressure drop). If need be **CALL ANOTHER INSPECTOR FOR ASSISTANCE** if all the fire hydrants and valves within the test section are not visible from the testing location.
10. PRESSURE REDUCTION: If the water main has passed the pressure test the pressure should then be reduced to 40 psi. The pressure in the water main should never be allowed to go below 20 psi after a **PASSED** test.
11. CITY OF ELGIN WATER MAIN PRESSURE TESTING FORM: The City of Elgin Water Main Pressure Testing Form should be filled out for both **PASSING** and **FAILING** tests. The Engineering Inspector should print and sign their name at the bottom of the form. For both passing and failing pressure tests the Engineering Inspector will send the developer and the contractor notification of the test results (via email, fax or paper). If it is a failed test the Engineering Inspector will request information on a retest. If the pressure test passes, then the Engineering Inspector will also send a copy of the completed pressure test form along with a color coded map to

the Water Department (Kyla Jacobsen), Water Distribution (George Lorenzo) and the Project Engineer for the project file.

12. CHLORINATION TESTING: The Water Department Chemist will email the City Engineer when the section of water main on the TESTING MAP has passed Bac T testing.
13. IN-SERVICE: The water main is not considered to be in-service until all whips have been removed by the contractor and all applicable supply valves are opened by the City of Elgin Water Distribution.

NOTES: At certain times, the Engineering Inspector may not be able to be present for the full 2 hour test time. The Engineering Inspector shall lock the valve, using a City Master padlock, to secure the valve. Once this is done, any tampering on the testing equipment by anyone other than the Engineering Inspector or assigned City Inspector shall result in a failed test.