

**SECTION 02760**  
**PERFORMANCE TESTING OF PRESSURE PIPELINES**

**PART 1 -- GENERAL**

1.1 SECTION DESCRIPTION

A. This section includes materials and performance standards, and Contractor responsibilities associated with the furnishing of all labor, materials, equipment and incidentals required to properly perform flushing and hydrostatic testing of all pressure mains and disinfection and bacteriological testing of all pressure water mains, as shown on the Drawings and as specified herein.

B. The following performance testing must be conducted:

Water Main: Hydrostatic, Leakage and Bacteriological Testing

Force Main: Hydrostatic and Leakage Testing

Reclaimed Water Main: Hydrostatic and Leakage Testing

Low Pressure Main: Hydrostatic and Leakage Testing

1.2 RELATED SECTIONS

A. 02675 – Potable Water Systems

B. 02730 – Sewage Force Mains

C. 02731 – Reclaimed Water Systems

1.3 REFERENCES

A. ANSI/AWWA B300 - Standard for Hypochlorites.

B. ANSI/AWWA B301 - Standard for Liquid Chlorine.

C. ANSI/AWWA B303 - Standard for Sodium Chlorite.

D. ANSI/AWWA C600 - Standard for Ductile Iron Pipe Installation, Testing.

E. ANSI/AWWA C651 - Standard for Disinfecting Water Mains.

F. ANSI/AWWA C900 - Standard for PVC Pipe, 4"-12" for Water Distribution.

1.4 SUBMITTALS

A. Test Reports: Indicate results comparative to specified requirements.

- B. Certificate: Certify that cleanliness of water distribution system meets or exceeds specified requirements.

## 1.5 REPORT DOCUMENTS

- A. Disinfection report; record: (Water System Only)

1. Type and form of disinfectant used.
2. Date and time of disinfectant injection start and time of completion.
3. Test locations.
4. Initial and 24 hour disinfectant residuals (quantity in treated water) in PPM for each outlet tested.
5. Date and time of flushing start and completion.
6. Disinfectant residual after flushing in PPM for each outlet tested.

- B. Bacteriological report; record: (Water System Only)

1. Date issued, project name, and testing laboratory name, address, telephone number and State Certification Number.
2. Time and date of water sample collection.
3. Name of person collecting samples.
4. Test locations.
5. Initial and 24 hour disinfectant residuals in PPM for each outlet tested.
6. Coliform bacteria test results for each outlet tested.
7. Certification that water conforms, or fails to conform to bacterial standards of AWWA.
8. Bacteriologist's signature and authority.

- C. Hydrostatic Test Report: Record:

1. Time and Date of Testing.
2. Name of Person/Persons conducting test and present during test and

Company name.

3. Test locations.
4. All pressure gauge locations w/pressure at time.
5. Allowable leakage per specifications.
6. Actual leakage during test with finishing time and pressure.

## 1.6 QUALITY ASSURANCE

- A. Perform work in accordance with all ANSI/AWWA standards.

## 1.7 REGULATORY REQUIREMENTS

- A. Conform to applicable code or regulation for performing the work of this Section.
- B. The water system shall not be put into service until after the necessary bacteriological samples have been approved by the applicable regulatory agencies.

## **PART 2 -- PRODUCTS**

### 2.1 DISINFECTION CHEMICALS

- A. Chemicals:   ANSI/AWWA B300, Hypochlorite.  
                  ANSI/AWWA B301, Liquid Chlorine  
                  ANSI/AWWA B303, Sodium Chlorite

## **PART 3 -- EXECUTION**

### 3.1 GENERAL

- A. Verify that piping system has been cleaned and properly isolated.
- B. The maximum length of line to be tested as one section will be 2,500 feet.
- C. Bacteriological testing shall not begin until after the pressure test has been passed.

### 3.2 CLEANING

- A. Water Distribution, Force Main and Low Pressure Main Systems
  1. Flush all foreign matter from pipeline. For water mains, flush prior to disinfection. Hoses, fittings and temporary pipes in ditches shall be provided as required to dispose of flushing water without damage to adjacent properties. Flushing velocities shall be at least 2.5 feet per second.

2. Prior to the actual line flushing operation, the Contractor shall properly notify SLCU and the Engineer of Record of such intended water use a minimum of 24 hours prior to flushing of mains smaller than 10 inch diameter, and, preferably, at least 1 week prior to flushing of mains 10 inch diameter and larger. All flushing times will be limited to off peak times of water system demand and consumption. No flushing shall take place without SLCU representatives and/or Engineer of Record present.
3. SLCU will provide meter assemblies for determination of the volume of water used for flushing. The contractor shall pay for all water used.
4. Mains 8" diameter and larger shall be cleaned using a poly-pig cleaning system. All equipment and piping shall be provided by the contractor. Mains smaller than 8" diameter shall be cleaned using conventional flushing methods or by poly-pig cleaning system.

### 3.3 HYDROSTATIC AND LEAKAGE TESTING

- A. The Contractor shall provide all necessary equipment such as pumps, gauges and water measuring tanks and shall perform all work required for pipe pressure and leakage test. Hydrostatic and leakage tests shall be made between valves and/or connectors for each section tested using the procedure outline in ANSI/AWWA C600.
- B. The allowable leakage rate for pressure tests are included in the specific system standard specifications. The testing procedure shall include the continued application of the specified pressure to the test system by way of a pump taking supply from a container suitable for measuring water loss. The amount of loss shall be determined by measuring the volume displaced from said container. Any exposed pipe, fittings, valves, hydrants, and joints shall be examined during the test. Any damaged or defective pipe fittings, valves, or hydrants that are discovered following the pressure test shall be repaired or replaced with sound material, and all tests shall be repeated.
- C. The pressure shall not vary by more than  $\pm 5$  psi from the required pressure for the duration of the test. If at any point during the test the pressure loss exceeds 5 psi, the test is considered failed. Should the test fail, necessary repairs shall be accomplished by the Contractor and the test repeated until within the established limits.

### 3.4 DISINFECTION (Water System Only)

- A. Disinfection of mains shall comply with AWWA C651. Each unit of completed supply line and distribution system shall be thoroughly flushed and then disinfected with chlorine.

- B. The Contractor shall install sampling taps required to take all necessary water samples of points designated in the Construction Drawings or by SLCU representatives.
  
- C. The Contractor shall make all arrangements with a certified testing laboratory to take all water samples required for bacteriological tests and shall maintain continuous running bacteriological sample taps. Water mains being tested must remain under line pressure, and have continuous running sample taps until release of system into service by SLCU and FDEP.

**\*\* END OF SECTION \*\***