

SECTION 026202
HYDROSTATIC TESTING OF PRESSURE SYSTEMS

1. DESCRIPTION

This specification shall govern all work necessary for hydrostatic testing the completed pressure system. The Contractor shall provide all tools, equipment, materials, labor, etc., as necessary, except as noted, and accomplish all testing under this specification.

2. MATERIALS

Water for filling the line and making tests will be furnished by the Contractor through a standard meter connection. A meter and gauges for testing shall be supplied by the Contractor. A test pump with appropriate connector points as approved by the Water Superintendent for the installation of meter and gauge shall be furnished by the Contractor. The meter shall be directly connected to the main or pipe being tested by the use of copper tubing or an approved reinforced hose. The meter shall be protected against extreme pressures by the use of a one-inch (1") safety relief valve set at the test pressure plus ten pounds per square inch (psi) and furnished by the Contractor.

3. TEST PROCEDURE

Tests shall be made only after completion of backfill as specified, and not until at least thirty-six (36) hours after the last concrete thrust block has been cast. Contractor shall coordinate hydrostatic testing with the proposed construction sequencing and phasing.

Each section of pipeline shall be slowly filled with water and the specified test pressure, measured at the point of lowest elevation, shall be applied. During the filling of the pipe and before applying the specified test pressure, all air shall be expelled from the pipeline.

During the test, all exposed pipe, fittings, valves, hydrants and joints shall be carefully examined. If found to be leaking, they shall be corrected immediately by the Contractor. If the leaking is due to cracked or defective material, the defective material shall be removed and replaced by the Contractor with sound material.

All pipes shall be subjected to two hydrostatic tests. The first hydrostatic test shall be a two-hour test at a pressure of 150 psi. The second test shall be no less than 48 hours after successful completion of the first hydrostatic test. The second hydrostatic test shall be for a 24-hour period at City operating pressure for waterlines or at 50 psi for wastewater force mains and effluent lines.

The maximum allowable leakage shall be as follows:

Ductile Iron Pipe, AWWA C600

$$L = \frac{S D (P)^{\frac{1}{2}}}{133,200} \quad \text{or} \quad L = \frac{N D (P)^{\frac{1}{2}}}{7,400}$$

Asbestos - Cement Pipe, AWWA C603

$$L = \frac{N D (P)^{\frac{1}{2}}}{4,000}$$

PVC Pipe - Uni-bell equation 99

$$L = \frac{N D (P)^{\frac{1}{2}}}{7,400}$$

WHERE:

L = Maximum Allowable Leakage (gallons/hour)
S = Length of Pipe Tested (feet)
N = Number of Joints in Tested Line (pipe and fittings)
D = Nominal Diameter of Pipe (inches)
P = Average Test Pressure (psi)

If the pressure system fails to meet the leakage requirements, the Contractor shall make the required repairs to the system and the system shall be retested. This procedure shall be repeated until the system complies with leakage requirements. The cost of each retest shall be \$100.

4. MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, hydrostatic testing of pressure systems will not be measured for pay, but shall be subsidiary to the installation of the pressure system component.