

SECTION 01815
TESTING PIPING SYSTEMS

PART 1 – GENERAL

1.01 SUMMARY

- A. Hydrostatic pressure testing.
- B. Systems to be tested, type of test to be performed, and test pressure shall be as specified in other sections of Specifications.

1.02 SUBMITTALS

- A. Test report for each piping system tested. Include following:
 - 1. Date of test.
 - 2. Description and identification of piping system tested.
 - 3. Type of test performed.
 - 4. Test fluid.
 - 5. Test pressure.
 - 6. Type and location of leaks detected.
 - 7. Corrective action taken to repair leaks.
 - 8. Results of retesting.

PART 2 – PRODUCTS

(NOT USED)

PART 3 – EXECUTION

3.01 GENERAL

- A. Test in presence of ENGINEER.
- B. CONTRACTOR shall provide water for testing specified herein.
 - 1. Leachate or water from Saline is acceptable.
- C. Provide pumps and piping required to bring water to point of use.
- D. Provide air supply.
- E. Provide test pressure equipment, meters, pressure gauges, and other equipment, materials, and facilities necessary to perform specified tests.
- F. Provide bulkheads, flanges, valves, bracing, blocking, or other temporary sectionalizing devices that may be required.
- G. Remove temporary devices after tests complete.
- H. Perform tests on exposed piping after completely installed, including supports, hangers, and anchors.
- I. Perform tests on piping that is clean and free of dirt, sand or other foreign material.

- J. Plug pipe outlets with test plugs. Brace each plug securely to prevent blowouts.
- K. Add test fluid slowly.
- L. Include regulator set to avoid overpressurizing and damaging piping.
- M. Perform pressure testing in accordance with local, state, and federal requirements.
- N. Correct leaks or defects and retest at no additional cost to OWNER.

3.02 HYDROSTATIC PRESSURE TESTING

- A. Perform hydrostatic pressure testing for piping systems identified in other sections. Test pressure shall be 50% greater than the pump's shut-off head for that piping system.
- B. Open vents at high points to purge air pockets while piping system is filling. Venting may also be provided by loosening flanges or with equipment vents.
- C. Testing:
 1. After section of piping to be tested has been filled with water, apply test pressure by means of force pump of such design and capacity that required pressure can be applied and maintained without interruption for duration of test.
 2. Measure test pressure by means of tested and properly calibrated pressure gauge acceptable to ENGINEER.
 3. Maintain test pressure for sufficient length of time to permit ENGINEER to observe piping under test but not less than 2 hours.
- D. With exception of buried piping with mechanical joints or push-on joints, piping systems shall show no visual evidence of weeping or leaking. If leakage is evident, make appropriate repairs and retest.
- E. Maximum allowable leakage for buried piping with mechanical joints or push-on joints is as follows. If leakage is excessive, make appropriate repairs and retest.

$$L = \frac{NDP^{1/2}}{7,400}$$

Where:

- L = Leakage, gallons per hr
- N = Number of joints under test
- D = Nominal diameter of piping, in.
- P = Average pressure during test, lbs per sq in.

END OF SECTION