SECTION 15044
HYDROSTATIC TESTING OF PRESSURE PIPELINES

PART 1 - GENERAL

1.01 DESCRIPTION. This section describes the requirements and procedures for pressure and leakage testing of all pressure mains.

1.02 RELATED WORK SPECIFIED ELSEWHERE.

Standard Specifications 15000, 15056, 15064, 15099 and 15150

1.03 REQUIREMENTS PRIOR TO TESTING.

A. All piping, valves, fire hydrants, services, and related appurtenances shall be installed prior to testing.

B. The pipe trench shall have trench zone backfill placed and compacted to finish grade in rural areas.

C. For pipe in roads, the pipe trench shall have trench zone backfill placed and compacted per VCMWD Standard Drawing

C. All concrete anchor blocks shall be allowed to cure a sufficient time to develop a minimum strength of 2,000 psi before testing.

D. Pressure tests on exposed and aboveground piping shall be conducted only after the entire piping system has been installed and attached to pipe supports, hangers or anchors as shown on the Approved Plans.

E. Steel pipelines shall not be tested before the mortar lining and coating on all pipe lengths within the line have been in place for a minimum of fourteen (14) days. Cement-mortar lined pipe shall not be filled with water until a minimum of eight hours has elapsed after the last joint has been mortared.

1.04 HYDROSTATIC TESTING OF PIPELINES.

Hydrostatic testing shall be performed on all pipelines. In the event repairs are necessary, as indicated by the hydrostatic test, repairs shall be made and pipe shall be retested until it passes before disinfection process can commence.

1.05 CONNECTION TO EXISTING MAINS. Hydrostatic testing shall be performed prior to connections to existing mains. District authorization for connection to the existing system shall be given only on the basis of acceptable hydrostatic, disinfection and bacteriological test results.

PART 2 - MATERIALS

2.01 WATER.

A. Potable water shall be used for hydrostatic testing of pipelines.

B. Potable water shall be supplied by a District source. Make-up water for testing shall also be potable water.

C. Well water shall not be used for hydrostatic testing or any other purposes in new or existing pipelines.

2.02 CONNECTIONS.

A. Testing water shall be supplied through a metered connection equipped with a backflow prevention device at the point of connection to the potable water source used.

B. The Contractor shall provide any temporary piping needed to deliver potable water to the piping that is to be tested. Temporary piping shall be in accordance with Section 15000.

PART 3 - EXECUTION

3.01 GENERAL.

A. The Contractor shall provide the District with a minimum of 48 hours' notice prior to the requested date and time for hydrostatic tests.

B. The Contractor shall furnish all labor, materials, tools, and equipment for testing.

C. Temporary blocking during the tests will be permitted only at temporary plugs, caps or where otherwise directed by the District.

D. All valves and appurtenances shall be operated during the test period. The test shall be conducted with valves in the open position.

E. At the onset of testing, all valves, air vacuum assemblies, blowoffs, and services shall be monitored for possible leakage and repairs made, if necessary, before the test proceeds. The appurtenances shall be monitored through the duration of the testing.

F. For pipe with porous lining, such as cement mortar, the pipe shall be filled with water and placed under a slight pressure for a minimum of forty-eight (48) hours prior to the actual hydrostatic test.

3.02 FIELD TEST PROCEDURE.

A. Before applying the specified test pressure, care shall be taken to release all air within the pipe and appurtenances to be tested. Air shall be released through services, fire hydrants, air release valves, or other approved locations.

B. A five (5) hour hydrostatic pressure test shall be performed after the pipe and all appurtenances have been installed and after any trench backfill compaction with heavy-duty compaction equipment has been completed. The hydrostatic test pressure shall be 135% above the design pressure of the pipe at the lowest point in the section being tested, and/or the test pressure shall be 110% of the design pressure of the pipe at the highest point in the section being tested, or as directed by the District Engineer, and shall be at least equal to the design class of the pipe at the highest point in the line. The test pressure shall be applied and continuously maintained by pumping for a period of four (4) hours. During the pumping phase of the test, the test pressure shall be maintained at not less than 95% of the specified test pressure at all times. At the end of the fourth (4th) hour, the pressure shall meet the requirements stated above. Pumping shall then be discontinued for one hour and the drop in pressure shall be recorded. Any recordable pressure loss will constitute a failed test. If the line is unable to pass the hydrostatic test after reasonable number of attempts, the contractor will then need to find the source of the pressure loss and report their findings to the District Engineer.

END OF SECTION 15044