

Method of Statement for Hydraulic Testing

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1. PURPOSE

Purpose of this method statement is to establish a detailed method, resources, equipment, quality control and HSE measures to be planned, prepared and implemented to ensure that the cleaning, water filling, hydrostatic testing.

2. SCOPE OF WORK

This method statement is made to enumerate the general requirements for inspection, flushing, testing, dewatering/drainage.

3. Methodology

1. General

Before Hydro testing of any piping system, it shall be inspected for the following:

- Piping has been erected as per latest approved drawings.
- All supports have been installed correctly and test preparation has been carried out. SUBCONTRACTOR shall submit the hydro test plan/Test pack with the following documents, prior to start of the Hydro test for approval from client.
- Marked up P&ID with Test Packs/Hydro test loop
- Isometric drawing latest approved
- Piping check list for testing
- Piping punch list
- Line list approved for construction.
- Weld history sheet
- Piping support installation report
- List of valves include piping test
- Calibration certificate of instruments
- Test Pack Content
- Cover Sheet

2. Test Pressure

Hydrostatic test pressure shall be as indicated and yellow highlighted in the piping isometrics line list according to attached mark-up P&ID. For typical Hydro test pressures, a distance of minimum 15 Mts shall be considered safe.

3. Pressure Instruments & Equipment

- All Pressure Gauges shall be calibrated. Pressure gauges if required shall be calibrated at site using Dead weight tester having a valid calibration certificate not older than one year.

- The hydro test pressure shall be monitored with a bourdon tube pressure gauge that has been calibrated with a dead weight tester within the last 30 days. Maximum scale range of the pressure gauge should be minimum 1.5 times or 150% of the test pressure. One pressure gauge should be fixed at the lowest point and the other one should be fixed at the highest point of the piping system to be tested.
- All pressure & temperature gauges used should have suitable range and valid calibration certificate.

Pressure pump shall be of sufficient capacity to enable pressurization within a suitable time and good Pressure control at all time.

- Pressure and temperature recorder instruments shall be used during pressure hold.

4. Testing Method

- All vent points shall be kept open.
- Water shall be introduced in the system from low point to avoid air pocket formation. Vents at high point shall be left open and not closed until water flows out. All air shall be removed before pressurizing.
- Close the vent points prior to pressurizing the piping system.
- Pressure shall be applied after the system/line is ready for pressurization.
- The pump shall be attended constantly during the pressurization by an authorized person.
- Pressure shall be applied by means of suitable pump which shall be isolated from the system as soon as the test pressure is reached and stabilized in the system.
- The rate of pressure increases in approaching the test shall not exceed 5 bar per minute.
- Care shall be taken to avoid increase in the pressure due to temperature variation during the test.
- After the required test pressure has been attained, all welds, flange joints shall be frequently inspected. If any leak occurs in the system, it shall be rectified.
- Leakage, if any, noticed during testing shall be rectified immediately and retesting of the system/line shall be done after rectified.
- Pressure pump shall be disconnected from the system/piping loop during holding period.
- If pressure will rise from specify limit due to temperature, then bleed out the water to maintain the test pressure.
- Test pressure shall be maintained for a period of minimum two hours.

Test duration is Min 2Hrs.

- During the holding period, pressure & temperature shall be checked every 15 minutes intervals and it shall be recorded on "Hydrostatic Testing Report for Piping".

5.EQUIPMENT AND TOOLS

Following are the minimum tools and equipment required to perform the activities:

- Water Tanker
- Test Manifolds
- Test Pumps
- Dewatering Pumps
- Air compressor
- Diesel Generator
- Tower Light
- Boom Truck
- Torque Wrench
- Hand tools