



**TESORO LOGISTICS OPERATIONS, LLC.
HIGH PLAINS PIPELINE SYSTEM – ND**

**BEULAH BASIN
RAIL LOADING 10" PIPELINE
PROJECT**

HYDROSTATIC TEST PROCEDURE

1.0 BACKGROUND AND SCOPE

Tesoro Logistic Co. is proposing constructing approximately 4.1 miles of 10" crude oil pipeline from the Zap Block Gate Valve # 55 to the Basin Beulah Rail Loading Facility. The new pipeline will connect to an existing Tesoro Logistics 16" main line from Dunn Center to Mandan Refinery. The Zap Block Gate Valve is located approximately 55.78 miles North of Mandan, ND.

All station piping work & modifications will require hydrotest.

HYDROSTATIC TEST MEDIUM, SOURCE & DISPOSAL

TEST MEDIUM: Water

WATER SUPPLY: The water will be supplied by the contractor.

WATER DISPOSAL: After the test, the water will be discharge according to existing environmental requirements.

2.0 DETERMINATION OF TEST PRESSURE AND DURATION

All new piping will be hydrostatically tested to true 600 # pressure rating (between 1850 and 1900 psig) for 4 hours if above ground and 8 hours if underground. All testing instrumentation and equipment must be certified, calibrated, and current. All tests will be documented with signed charts, photos and/or sketches.

Minimum Test Pressure: 1850 psi

Maximum Test Pressure: 1900 psi

If water has to be added or removed, the volume will need to be documented. For this specific test, there are no elevation issues.

Deadweight readings will be taken at least every 10 minutes for the first hour and then every 15 minutes for the remainder of the test.

3.0 TEST CONSTRAINTS

Since the hydrotest will be conducted outside, the piping and all associated facilities will need to be under a tent to minimize any direct sunlight or weather effects.

TESORO and contractor personnel participating in tasks for the hydrotest will need to provide OQ documentation for the required hydrotest tasks prior to the hydrotest. A copy of the OQ documentation for all responsible personnel will need to be included in the project file.

4.0 BASIS FOR ACCEPTANCE AND VALIDITY

Following the fill of the system, a “Stabilization Period” will be implemented during which the temperature of the water, pipe and air equalize to the extent necessary to conduct a valid pressure test. This “Stabilization Period” will depend on the individual test conditions.

For a pressure test to be acceptable, the pressure drop should not exceed 2 psi/hour for the duration of the test, unless the test inspector determines that the pressure drop occurred for reasons other than a leak.

At the conclusion of the test, A Tesoro representative must sign all reports. Additionally, pressure recording charts should contain the following information:

Test Report Number	Test Medium
AFE/Work Order Number	Test Duration
Service of Line Tested	Elevation Variation
Test Date	Pipe Specifications

Deadweight Test Gauge Readings:

Minimum Pressure (psig)	Minimum Temperature (°F)
Maximum Pressure (psig)	Maximum Temperature (°F)
Test spring Range	Pressure Readings at defined intervals

This information should be accompanied by a Tesoro personnel signature and certification statement such as, *“This is to certify that all piping and related fittings thereto as evidenced by this pressure recording chart have been subjected to a pressure test at the pressure and time duration indicated.”*

Upon completion of the pressure test, the Project Manager will review the data produced. The Project Manager will prepare a Pressure Test Summary Report

5.0 EQUIPMENT

The accuracy of the equipment listed below is to be verified before each test and is to be calibrated and verified against certified test equipment within a period of six months before the test.

A copy of the deadweight and chart recorder calibration certification must be obtained before conducting the pressure test. Certification records for all equipment will be maintained with pressure test results, including:

Pressure Recording Instruments – A continuous record of the test pressure is to be obtained during each pressure test with a pressure recorder.

Temperature Recording Instruments – A continuous record of the ambient and ground (if underground test) near the pipe temperatures are to be maintained during each pressure test.

Pressure Test Equipment – Test pressure is to be continually verified by use of test equipment, including deadweight testing equipment or digital gauge.

6.0 ENVIRONMENTAL AND SAFETY CONSIDERATIONS

During the pressure test, Tesoro will ensure that every reasonable precaution is taken to protect the safety of employees and the general public. Tesoro will take all practical steps, including those listed below, to keep persons not working on test operations outside of the testing area until the pressure is reduced to or below the normal operating pressure.

Personnel performing the test should approach the pressurized line only in the performance of their duties. Where possible, personnel shall use safety barriers for protection from the pressurized line and position the testing equipment so as to minimize potential hazards.

Adequate support, bracing and location of pumping equipment and pressure piping shall be used in connecting to the facility to be tested.
summarizing the test and acceptance of the test as a valid indication of the launcher's integrity.

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