

Subpart J**Test Requirements****§ 192.501 Scope**

This subpart prescribes minimum leak-test and strength-test requirements for pipelines.

§ 192.503 General Requirements

- (a) No person may operate a new segment of pipeline, or return to service a segment of pipeline that has been relocated or replaced, until---
 - (1) It has been tested in accordance with this subpart and § 192.619 to substantiate the maximum allowable operating pressure; and
 - (2) Each potentially hazardous leak has been located and eliminated.
- (b) The test medium must be liquid, air, natural gas, or inert gas that is---
 - (1) Compatible with the material of which the pipeline is constructed;

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Manager, Safety, Health, and Environmental

Approved: Signature on file Date:
Environmental Manager

- (2) Relatively free of sedimentary materials; and

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(3) Except for natural gas, nonflammable.

- (c) Except as provided in § 192.505(a), if air, natural gas, or inert gas is used as the test medium, the following maximum hoop stress limitations apply:

Class Location	Maximum hoop stress allowed as percentage of SMYS	
	Natural gas	Air or inert gas
1	80	80
2	30	75
3	30	50
4	30	40

- (d) Each joint used to tie in a test segment of pipeline is excepted from the specific test requirements of this subpart, but each non-welded joint must be leak tested at not less than its operating pressure.

ESI RESPONSE TO § 192.503**General Requirements:**

- (a) All piping systems shall be pressure tested after construction to the requirements in ANSI B31.8 except for pretested fabricated assemblies, pretested tie-in connections. Radiography in lieu of hydrotesting may be substituted for circumferential welds of welded tie-in connections not pressure tested after construction.
- (b) All pipelines to be operated at a hoop stress of 30% or more of the SMYS shall be pressure tested to a minimum of 1.5 times the design pressure. The test duration

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shall be four (4) hours to prove strength after construction and before being placed in operation.

- (c) Testing fluid shall be water. Air and gas are not permissible test media for Company-operated Location Class 3 pipelines.
- (d) Company shall maintain records showing the hydrotest procedures and the data developed in establishing its MAOP. These records shall be filed for the useful life of each company pipeline by the DOT Coordinator.

Reference to CONDEA Vista's "Pipeline Repair Procedure" DOT-007 and "Gas Transmission Pipelines Plant Engineering Specification" DOT-006, section 8.2.6, Testing After Construction and 9.2.7, Testing Repairs to Steel Pipelines or Mains Operating at Hoop Stress Levels at or Above 40% of the SMYS, section 9.5 Pipeline Service Conversions.

§ 192.505 **Strength Test Requirements for Steel Pipeline to Operate a Hoop Stress of 30% or More of SMYS**

- (a) Except for service line, each segment of a steel pipeline that is to operate at a hoop stress of 30% or more of SMYS must be strength tested in accordance with this section to substantiate the proposed maximum allowable operating pressure. In addition, in a Class 1 or Class 2 location, if there is a building intended for human occupancy within 300 feet of a pipeline, a hydrostatic test must be conducted to a test pressure of at least 125% of maximum operating pressure on that segment of the pipeline within 300 feet of such a building, but in no event may the test section be less than 600 feet unless the length of the newly installed or relocated pipe is less than 600 feet. However, if the buildings are evacuated while the hoop stress exceeds 50% of SMYS, air or inert gas may be used as the test medium.
- (b) In a Class 1 or Class 2 location, each compressor station, regulator station, and measuring station, must be tested to at least Class 3 location test requirements.

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- (c) Except as provided in paragraph (e) of this section, the strength test must be conducted by maintaining the pressure at or above the test pressure for at least 8 hours.
- (d) If a component other than pipe is the only item being replaced or added to a pipeline, a strength test after installation is not required, if the manufacturer of the component certifies that---
 - (1) The component was tested to at least the pressure required for the pipeline to which it is being added; or
 - (2) The component was manufactured under a quality control system that ensures that each item manufactured is at least equal in strength to a prototype and that the prototype was tested to at least the pressure required for the pipeline to which it is being added.
- (e) For fabricated units and short sections of pipe, for which a post installation test is impractical, a preinstallation strength test must be conducted by maintaining the pressure for at least four hours.

ESI RESPONSE TO § 192.505

ESI will pressure test all steel pipelines for a minimum of four hours. Records will be kept in accordance with § 192.517. (See comment to § 192.503.) Reference CONDEA Vista's "Pipeline Repair Procedure" DOT-007 and "Gas Transmission Pipelines Plant Engineering Specification" DOT-006.

§ 192.507 Test Requirements for Pipelines to Operate at a Hoop Stress Less Than 30% of SMYS and At Or Above 100 P.S.I.G.

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Except for service lines and plastic pipelines, each segment of a pipeline that is to be operated at a hoop stress less than 30% of SMYS and at or above 100 p.s.i.g. must be tested in accordance with the following:

- (a) The pipeline operator must use a test procedure that will ensure discovery of all potentially hazardous leaks in the segment being tested.
- (b) If, during the test, the segment is to be stressed to 20% or more of SMYS and natural gas, inert gas, or air is the test medium---
 - (1) A leak test must be made at a pressure between 100 p.s.i.g. and the pressure required to produce a hoop stress of 20% of SMYS; or
 - (2) The line must be walked to check for leaks while the hoop stress is held at approximately 20% of SMYS.
- (c) The pressure must be maintained at or above the test pressure for at least 1 hour.

ESI RESPONSE TO § 192.507

All piping systems shall be pressure tested after construction to the requirements in ASME/ANSI B31.8 except for pretested fabricated assemblies, pretested tie-in sections, and tie-in connections.

Leak tests shall be performed on all pipelines after construction and prior to being placed in operation.

Leak test shall be made at a pressure to produce 20% SMYS and the line shall be walked while this pressure is maintained on the pipeline. Reference ESI's "Gas Transmission Pipelines Plant Engineering Specification" DOT-006 section, 8.2.6 Testing after Construction.

§ 192.509 Test Requirements for Pipelines to Operate Below 100 P.S.I.G.

Except for service lines and plastic pipelines, each segment of a pipeline that is to be operated below 100 p.s.i.g. must be leak tested in accordance with the following:

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- (a) The test procedure used must ensure discovery of all potentially hazardous leaks in the segment being tested.
- (b) Each main that is to be operated at less than 1 p.s.i.g. must be tested to at least 10 p.s.i.g. and each main to be operated at or above 1 p.s.i.g. must be tested to at least 90 p.s.i.g.

§ 192.511 Test Requirements for Service Lines

NOT APPLICABLE. ESI DOES NOT UTILIZE SERVICE PIPELINES.

§ 192.513 Test Requirements for Plastic Pipelines

NOT APPLICABLE. ESI DOES NOT OPERATE DOT PLASTIC PIPELINES.

§ 192.515 Environmental Protection and Safety Requirements

- (a) In conducting tests under this subpart, each operator shall insure that every reasonable precaution is taken to protect its employees and the general public during the testing. Whenever the hoop stress of the segment of the pipeline being tested will exceed 50% of SMYS, the operator shall take all practicable steps to keep persons not working on the testing operation outside of the testing area until the pressure is reduced to or below the proposed maximum allowable operating pressure.
- (b) The operator shall insure that the test medium is disposed of in manner that will minimize damage to the environment.

ESI RESPONSE TO § 192.515

Test media will be disposed in accordance with CONDEA Vista's Environmental Department's approval.

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§ 192.517 Records

Each operator shall make, and retain for the useful life of the pipeline, a record of each test performed under §§ 192.505 and 192.507. The record must contain at least the following information:

- (a) The operator's name, the name of the operator's employee responsible for making the test, and the name of any test company used.
- (b) Test medium used.
- (c) Test pressure.
- (d) Test duration.
- (e) Pressure recording charts, or other record of pressure readings.
- (f) Elevation variations, whenever significant for the particular test.
- (g) Leaks and failures noted and their disposition.

ESI RESPONSE TO § 192.517

The Company shall maintain records showing the hydrotest procedures and the data developed in establishing the pipeline MAOP. Records shall be made covering all leaks and repairs. All pipeline breaks shall be reported in detail. These records shall be maintained in the DOT files for the useful life of each pipeline in the Company's operation.