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## **Task 41—Conduct Pressure Test**

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### **1.0 Task Description**

This task consists of the activities required for pressure testing steel pipelines and components of a pipeline prior to it being placed in service.

This task begins with isolation of the pipeline segment to be tested and ends with the release of test pressure according to the specified procedures.

### **2.0 Knowledge Component**

**An individual performing this task must have knowledge of the following:**

- The pressure test provides verification that the pipeline does not leak after withstanding the required pressure for the specified time period. Pressure testing is conducted for purposes such as the following:
  - MOP certification or integrity management;
  - testing for certification;
  - testing of replacement pipe for sections being relocated, replaced, or otherwise changed;
  - conversion of service.
- Pressure testing is normally conducted with water as the test medium (hydrostatic testing). Except for offshore pipelines, liquid petroleum that does not vaporize rapidly may be used as the test medium under the following conditions:
  - a) the pipeline test section is outside of cities and populated areas,
  - b) buildings within 300 feet of test section are unoccupied when test pressure is greater than a pressure that produces a hoop stress of 50% specified minimum yield strength, and
  - c) surveillance and continuous communication are maintained along the test section.
- Test pressure must be maintained for four continuous hours at a pressure equal to at least 125% of the MOP. Pipelines that cannot be visually inspected for leakage must maintain an additional four continuous hours of test pressure equal to 110% of the MOP.
- A pressure test plan must be prepared that identifies the name of the Operator and the person conducting the test (including name of test company, if applicable). The following documentation must be included with the plan:
  - a) date and time of the test,
  - b) pressure-recording charts,
  - c) test instrumentation calibration data,

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- d) minimum and maximum test pressures,
- e) minimum time duration of the test,
- f) description of the facility tested and the test apparatus, and
- g) temperature of the test medium or pipe during the test period.

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- If elevation differences in the test segment exceed 100 feet, a profile of the pipeline identifying the elevations and test sites must also be included with the plan documentation.
- The testing instrumentation calibration must be current and certified prior to the test. All pipe, components, and test equipment must be capable of withstanding the required maximum test pressure as required by the test plan. Pressure discontinuities, including test failures that appear on the pressure-recording charts, must be explained in the pressure test plan.

**Terms applicable to this task are as follows:**

**Hydrostatic testing**

The application of pressure to a pipeline utilizing water as the test medium.

**Maximum operating pressure (MOP)**

The maximum pressure at which a pipeline or segment of the pipeline may be normally operated under 49 CFR Part 195.

**Pressure testing**

The application of pressure to a pipeline segment or pipe utilizing water or non-HVL product as the test medium. Air or an inert gas may be used as the test medium on a low-stress pipeline.

**Test instruments**

Calibrated equipment such as deadweight testers, temperature recorders, temperature probes, or pressure recorders that are used to conduct a pressure test.

**Test medium**

The liquid or gas used to transmit a predetermined force throughout an isolated pipeline segment for the purpose of determining the ability of the pipeline to withstand a specified pressure.

**Test normalization**

To factor the thermal effects of a temperature increase or decrease on the test medium

and the pipe. **AOCs associated with the performance of this task include the**

**following:**

AOC Recognition	AOC Reaction
Valve failure, pipe failure, gasket failure, threaded fitting failure, or weld failure.	Assess damage and make appropriate notifications per Operator procedures.
Pipe or component failure during a test or the presence of air in the test medium.	Determine the cause of deviation and take appropriate steps to correct. Make any appropriate notifications per Operator procedures.

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### 3.0 Skill Component

To demonstrate proficiency of this task, an individual must perform the following steps:

Step	Action	Explanation
1	Confirm the pipeline segment has been isolated for the test according to the specified procedures.	Verifies affected pipeline segment is prepared to accept test pressure.
2	Confirm calibration and certification of testing instrumentation is current.	Verifies proper measurement of test parameters.
3	Connect a pump or compressor to the pipeline segment.	Confirm connections are secured for tightness.
4	Install temperature probes and connect the temperature- and pressure-recording devices.	Allows for accurate measurement of test parameters.
5	Fill and vent the pipeline segment with the test medium and allow the temperature to stabilize.	Confirms removal of air from pipeline segment. Allows test normalization to minimize fluctuations.
6	Increase pipeline pressure according to specified procedures.	Performs at specified intervals.
7	Observe and record pressure and temperature according to specified procedures.	Documents pressure discontinuities.
8	Document test results.	Confirms test records are maintained.
9	After confirming the test was successful, release pressure according to specified procedures.	Allows pipeline system to be returned to normal operation.
10	Make notifications per Operator procedures.	Follow the Operator's policies/procedures for appropriate documentation, notification protocol, and actions required.

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## Task 42.7—Perform Welding

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### 1.0 Task Description

This task validates that welders can perform welds on pipelines and breakout storage tanks according to the Operator's applicable welding procedures.

This task pertains to numerous welding types, including but not limited to installing components such as flanges, reinforcing saddles, and nozzles; joining steel pipe; or welding a door sheet on a breakout tank. Each individual welding type must have a qualified welding procedure, and the individual must satisfactorily complete the weld according to that procedure.

This task begins with the first step identified in the Operator's applicable welding procedure. The task ends once the weld has been completed.

**This task does not include but may lead to the performance of other covered tasks such as the following:**

- Perform Visual Inspection of Welds (reference Task 38.3).
- Perform NDT—Radiographic Testing (reference Task 38.4).
- Perform NDT—Liquid Penetrant Testing (reference Task 38.5).
- Perform NDT—Magnetic Particle Testing (reference Task 38.6).
- Perform NDT—Ultrasonic Testing (reference Task 38.7).

### 2.0 Knowledge Component

This task validates that qualified welders can effectively follow Operator-approved welding procedures.

**An individual performing this task must have knowledge of the following:**

- Operator-approved welding procedures applicable to the welds to be performed.

Welders shall be qualified in accordance with the latest DOT-approved edition of API 1104 or Section IX of the ASME *Boiler and Pressure Vessel Code* before they can be qualified to perform this covered task.

**AOCs associated with the performance of this task include the following:**

AOC Recognition	AOC Reaction
Burn-through during the performance of a weld.	Stop task activities and make appropriate notifications per Operator's procedures.
Arc burns outside the weld area.	Stop task activities and make appropriate notifications per Operator's procedures.

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### 3.0 Skill Component

To demonstrate proficiency of this task, an individual must perform the following steps:

Step	Action	Explanation
1	Complete the qualifying weld(s) according to the Operator's welding procedures.	Welding procedures are developed to meet standards applicable to the type of weld being performed. Successful completion of the qualifying weld(s) is determined either through destructive or nondestructive testing, and results shall be interpreted by a qualified person.
2	Make notifications per Operator procedures.	Follow the Operator's policies/procedures for appropriate documentation, notification protocol, and actions required.

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