

11-G Tapping and Stopping Pipelines under Pressure

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1.0 SCOPE

This chapter describes the procedures for hot tapping and stopping pipelines under pressure.

2.0 REGULATORY REFERENCES

49 CFR Part 192 §§ [192.151](#), [192.627](#).

3.0 PROCEDURE [[192.627](#)]

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3.1 General

- (a) All tapping or stopping tasks performed on DENC and DESC pipelines *shall* be made by individuals operator qualified to perform the specific task being performed. An operator qualified individual *may* not observe a non-qualified individual perform the tasks associated with tapping and stopping pipelines. Refer to [12-E Repair of Plastic and Steel Pipelines](#) and O&M Procedure [12-F Reinstating and Pressure Testing of Service Lines/Abandonment or Deactivation of Facilities](#) for additional requirements and approvals necessary prior to working on any *pipeline*.
- (b) Persons qualified to make pipeline taps and stops *must* be:
 - (1) Thoroughly trained in the operating procedures and safety precautions associated with the tapping and stopping equipment used,
 - (2) Thoroughly trained in the use of the fittings required to make the tap, and
 - (3) Knowledgeable of the pressure limitations of the tapping and stopping equipment, fittings, and pipeline being tapped and/or stopped.
- (c) Safety measures related to the prevention of accidental ignition and shutting down of pipelines as outlined in [12-I Prevention of Accidental Ignition](#) and [11-A Pressure Control, Operating within MAOP Limits](#) must be employed.
- (d) All relevant written procedures, including the manufacturer's installation and operating instructions for the equipment and fittings being utilized, shall be reviewed and kept on the jobsite. This will permit quick reference if a question or problem arises during the performance of the tapping or stopping operation. DENC and DESC procedures are available from *Engineering* or Technical Training.

3.2 Pipeline Identification [[192.151](#)]

- (a) Before tapping a pipeline, the pipeline shall be accurately identified. Company maps will be reviewed and operators of other underground utilities in the vicinity *shall* be contacted if necessary to help avoid tapping the wrong pipeline.
- (b) Before installing a fitting on an existing pipeline the pipe specifications shall be confirmed. (to include size, wall thickness, grade, SDR, coating, etc.)

NOTE: If field verifications do not match mapping or what was expected, manager and engineering shall be notified, and appropriate approvals shall be received before proceeding. Maps and other documentation shall be updated as needed.
- (c) Before installing a fitting on an existing pipeline under pressure, the *Maximum Allowable Operating Pressure* (MAOP) shall be confirmed. The rating of the fitting(s) *should* have a design pressure rating at minimum equal to MAOP of the existing pipeline. If this is impractical, Director-Engineering approval is required to use a fitting that will lower the MAOP of the pipeline.
- (d) Before installing tapping equipment on an existing pipeline under pressure, the Operating Pressure (OP) of the pipeline shall be confirmed. Tapping equipment pressure ratings shall equal or exceed the OP. The OP of pipeline may be reduced temporarily so the equipment ratings will not be exceeded.

3.3 Inspections

- (a) Each pipeline being tapped shall be thoroughly inspected to ensure that it is in satisfactory condition. When tapping pipelines, wall thickness shall be verified via records or field verification. Taps on lines designed to operate over 200 psig should field verify wall thickness to confirm records, length of tap, and help identify potential problems with the pipe wall prior to welding on the pipeline.

3.4 Approvals

Engineering approvals are required for the design of taps, and before making taps, on specified pipelines as follows:

- (a) All non-*emergency* taps 2" and greater made on pipelines designed to operate above 285 psig shall be designed and approved by Engineering.
- (b) Company Inspectors and Supervisors must verify that individuals performing tapping or stopping tasks are currently operator qualified to perform the specific task being performed and required Engineering approvals have been obtained.

3.5 Equipment

- (a) T. D. Williamson equipment will typically be used when tapping or stopping the following pipelines:
 - (1) Pipelines with an *MAOP* or potential MAOP greater than 740 psig and an *MOP* greater than 500 psig for pipe 3" and greater in size; and
 - (2) Pipelines with an MOP of greater than 250 psig for 2" and 2½" pipe.
- (b) Mueller equipment will generally be used for other tapping and stopping applications.

3.6 Consideration for Pigging of Transmission Pipelines

Design requirements for pigging of pipelines must be considered for all transmission pipelines and potential future transmission pipelines. This requires the use of guide bar flow through inserts in tapping fittings if the outlet diameter of the tap exceeds 50% of the nominal pipe size and the use of scalloped nipples (used to weld coupon onto completion plug) in line stopple fittings.

3.7 Completion

After tapping the pipeline, completion plugs, caps, or other parts shall be properly installed and *leak* tested to ensure the long-term integrity of the pipeline. Inserts in retired self-tapping tees shall be left up on all pipelines. Protective coatings shall be applied to metallic fittings and steel pipelines to ensure cathodic protection system integrity.

3.8 Procedures for Steel Pipelines

- (a) Manufacturer's procedures shall be followed when using tapping and stopping equipment.
- (b) The [Tapping Checklist](#) (Microsoft Word file) shall be filled out and followed for projects involving any tapping and stopping for 2" steel and above (excluding the following fittings: 2" H17190, 2" H17491, 2" H17500, 2" H17501, and 2" H17656) or TDW equipment (for 4", 6", or 8" plastic or any steel tap/stop-off). The top portion of the form is to be filled out before the tap with coordination between the project owner and the tapping team (except for when this is not practical such as during after-hours emergencies). During or after the tap the remaining portions of the form should be filled out as quality checks along with any relevant checkbox lists for the tap. Operations supervisor/manager or designee should review the form before being added to the project folder.
- (c) Before tapping any fitting (no matter the size) a qualified operator shall verify a threaded plug will go into fitting with ease and verify that internal threads are clear and in good condition. And verify the number of turns required to install plug.
- (d) For guidance see [Plug Count for 2-inch and Less.doc](#)
- (e) For each tapping/stopping operation that involves 2" steel and above (excluding the following fittings: 2" H17190, 2" H17491, 2" H17500, 2" H17501,

hole/excavation location while the tapping/stopping activities are underway. The only exception to this requirement would be if more than one tapping/stopping activity is being performed on the same job, in the same excavation or in separate bellholes that are all in reasonably close proximity (i.e., within visual sight, ability to verbally communicate between bell holes). Under these circumstances, the crew leader and tapping team may move successively from one tapping/stopping location to the next. In such case, the crew leader must designate an experienced employee (one who is qualified and experienced to perform the tapping/stopping operation) to remain present at one location where tapping/stopping operations have commenced and are still underway (e.g., the stopper is engaged), while the crew and crew leader move to perform work at the other nearby location.

- (f) At no time shall an active tapping/stopping operation be left unattended by company Operations personnel (e.g., while the drilling machine is cutting, while the stopper is in place and the contractor is cutting/welding, etc.).
- (g) If any issues are experienced, that are not expressly covered by the manufacturer's instructions, the project procedures, or our O&M procedure, then they shall stop work immediately and notify the Supervisor or Manager.
- (h) Before proceeding, an approved field change request must be obtained. A minimum of two people, one who happens to be a subject matter expert, must be consulted to obtain the field change request. Examples of issues that would require an approved field change request are, but are not limited to cross-threaded completion plugs, stuck stoppers, leaking slide gate valves, etc.

3.9 Steel Tap Fitting Standards

Unless otherwise specified by Engineering, the following standards shall be observed when making a tap on a steel pipeline system pressurized with *gas*:

- (a) 3/4", 1" and 1-1/4" tapping tees may be used on steel pipe sizes 2" and above. Size on size tapping tee to pipe should not be used. (For the purposes of this procedure, TD Williamson 3-Way Tees are considered tapping tees.)
- (b) Laterals with reinforcing saddles may be made on steel pipe that is at least one nominal pipe size larger than the nominal pipe size of the lateral itself.

3.10 Procedures for Plastic Pipelines

State Specific: South Carolina

An electrofusion SHORTSTOPP PE Bottom Branch Outlet fitting from TD Williamson is one of the preferred methods for branch connections. The SHORTSTOPP PE Bottom Branch Outlet fitting may also be used to stop off plastic pipe in lieu of squeezing by tapping only the top of the fitting and pipe. The SHORTSTOPP PE Bottom Outlet fitting (with only the top tapped out for use as a line stopper) is a method for extending plastic mains 4" and larger.

4.0 TRAINING/QUALIFICATIONS

See the appropriate system Operator Qualification Program.

5.0 DOCUMENTATION/FORMS

System specific forms should be used where applicable.

- [Tapping Checklist](#) (Microsoft Word file)

6.0 RELATED DOCUMENTS

None at this time.

7.0 APPENDICES

(UNCONTROLLED IF PRINTED)