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LINE STOPPING FOR CARBON STEEL PIPE Specifications and Procedures

Description of Procedure - The line stopping procedure is a means of temporarily plugging a pressurized pipe without disrupting pressure of service upstream of the line stop. A pressure tap is first made into the main, allowing insertion of the line stop plugging device into the main under pressure. By using a special line stop fitting, the tapping valve can later be recovered after the plugging head has been removed from the main.

1. Prior to ordering material: Excavate, if necessary dewater and expose at the location of the line stop in order to measure the outside diameter of the steel. If main is deteriorated; or if utilities will interfere with fittings, support/thrust blocking, or equipment; move location up or downstream to structurally sound pipe.
 - a. Caliper O.D. of main to determine if pipe is out of round.
 - b. Measure outside diameter of line.
 - c. Verify wall thickness and interior condition by hot tapping techniques and/or ultrasound methods.
 - d. Restore as requested.
2. Re-excavate, if necessary; dewater. Weld line stop fitting(s) and wrapper plates around the main. Install drain nozzle(s) to the main.
3. Pressure test per Engineer's specifications.
4. Mount temporary tapping valve(s) to line stop fitting(s).
5. Mount tapping machine; open valve; pressure tap; retract cutter with coupon; close temporary valve; remove tapping machine.
6. Mount I.F.T. line stop machine; open temporary valve; insert line stop plugging head into main. Flow must be stopped or slowed momentarily while heads are inserted.
 - a. If two or more line stops are used, insert downstream plugging head first.
7. Test for shutdown at drain nozzle.
8. Cut downstream main. Install required fitting(s) and valve(s).
9. Equalize section of pipe through drain nozzle.
10. Remove line stop equipment install completion machine; remove temporary valve(s); install blind flange(s).

Permanent Drain Nozzles - Because some amount of leakage may pass line stops, a drain tap of 2" or greater may be added to the line to determine the quality of the shut down.

1. Contractor shall have the option of recovering the drain valves by using line stop type tapping nozzles with completion plugs, or abandoning the valves by leaving them attached to the nozzles. In either case, the outlet of each nozzle or valve shall be sealed with a blind flange, mechanical joint plug, or screwed pipe cap or plug.
2. The drain tapping fitting shall consist of a thread-o-let or flanged outlet contoured to the O.D. of the existing main and welded to the pipeline.
 - a. After outlet is welded, a split collar may be welded around the outlet to add support.

Extent of Shutdowns - The shutdown will be accomplished by using a line stop. Because of possible internal corrosion, missing mortar lining, or deposits in the main, "100 %" shutdowns may not occur. A satisfactory shutdown is one which allows the work to be accomplished.

Preliminary Field Inspection of Mains - Dimensional, specification, and other data regarding the existing mains have been taken from records.

1. Prior to ordering material, excavate at each proposed location, take an O.D. reading and caliper the header diameter to determine ovality.
 - a. If I.F.T. determines that data on pipe I.D. is not adequate I.F.T. may make one or more pressure taps on main to determine I.D. from coupons.
 - b. Minimum size of test coupon shall be 1 3/4" diameter, drilled through a nominal 2" valve.

Line Stop Fitting and Accessories for carbon steel pipe (14 gauge through Schedule 40) - Fitting shall be a weld type split tee. It shall consist of steel weldments; an upper line stop flange with a line stop nozzle and two full wrapper plates.

1. Line Stop Flange: The outlet of each fitting shall be machined from a 150 lb. forged steel flange (ASTM A181 or A105) or from pressure vessel quality steel plate (ASTM A285, Grade C); flat faced and drilled per ANSI B16.5. Suitable independently operated locking devices shall be provided in the flange to secure the completion plug.
2. Line Stop Nozzle: The nozzle, which lies between the saddle and the flange, shall be fabricated from steel pipe (ASTM A234). After welding and stress relief, the nozzle shall be accurately bored to accommodate the line stop plugging head. On sewage or corrosive applications the inside bore shall be fusion epoxy coated.
3. Full wrapper plates: The plates shall consist of steel plate (ASTM A234) .375, rolled to encircle the outside diameter of the pipeline in order for the plate to support the welded line stop fitting.

Cutting Operation - Drilling equipment shall be in good condition and equipped with power drive to ensure smooth cutting, and to minimize shock and vibration. Cutting equipment shall have a coupon retention device in the pilot drill suitable for retaining the size of coupon to be cut.

Line Stop Machinery 4" - 12" - The equipment shall be an I.F.T. non folding type assembly utilizing a full size cut. The head shall have a sealing element which is machined to fit the inside diameter of the pipe and uses the water pressure to seal the edge of the cup to the main while work is being performed. This equipment must be rated at 150 psi minimum and the line stopping contractor shall have at least five years experience in pressure stopping.

Line Stop Machinery 14" - 96" - The equipment shall be an I.F.T. folding type assembly to allow for a reduced entry hole instead of a full size cut, this will retain the pipe stability. The folding head shall have a sealing element which opens to fit the inside diameter of the pipe and uses the water pressure to seal the edge of the cup to the main while work is being performed. The equipment must be rated @ 150 psi minimum and the line stopping Contractor shall have at least five years experience in pressure stopping.