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LINE STOPPING FOR CONCRETE CYLINDER 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 all mains to determine ovality.
 - b. Measure outside diameter of line.
 - c. Verify wall thickness and interior condition by hot tapping techniques at drain nozzle location.
 - d. Restore as requested by Owner.
2. Re-excavate, if necessary; dewater. Weld line stop fitting(s) and wrapper plates around the main. Install permanent drain nozzle(s)/Equalization fittings to the main. Note; (2) fittings are usually required. One for each line stop.
3. Pressure test with 120% of the working pressure. Spray soapy solution around all welds and permanent materials to confirm pressure containment.
4. Pour concrete support and thrust blocking. Allow to cure per Engineer's instructions.
5. Mount temporary tapping valve(s) to line stop fitting(s).
6. Mount tapping machine; open valve; pressure tap; retract cutter with coupon; close temporary valve; remove tapping machine.
7. Mount I.F.T. folding head line stop machine; open temporary valve; insert line stop plugging head into main. "Flow must be stopped momentarily while heads are inserted"
 - a. If two or more line stops are used, insert downstream plugging head first.

8. Test for shutdown at drain / equalization fitting.
9. Cut downstream main. Install required fitting(s) and valve(s).
10. Equalize section of pipe through drain / equalization fitting .
11. Remove line stop equipment.
12. Install completion machine; remove temporary valve(s); install blind flange(s).

Permanent Drain Fittings - Because some amount of leakage may pass line stops, (2) drain taps of 2" or greater shall be added to the line to determine the quality of the shut down.

(2) 2" or larger line stop type drain fittings will be used so that the temporary valves can be removed after the operation. This will allow no valve to be left at this location for added security to the system.

Drain Fitting: The outlet, completion plug and cap of each fitting shall be machined from a 150 lb. forged steel flange (ASTM A181 or A105)

Collar wrapper plates: The plates shall consist of steel plate (ASTM A234) rolled to encircle the outside diameter of the fitting by a 1 ½" width.

Extent of Shutdown - The shutdown will be accomplished by using a line stop. Because of possible internal corrosion, missing mortar lining, or deposits in the main, "bottle-tight" shutdowns may not occur. A satisfactory shutdown is one which; allows the work to be accomplished (i.e. valve installation) using drainage pumps to dewater if needed.

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; a 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.
3. Full wrapper plates: The plates shall consist of steel plate (ASTM A234) 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 be tungsten tipped and 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 a I.F.T. non folding type assembly. The head shall have a sealing element which fits 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 @ twice the working pressure of the pipeline and the line stopping Contractor shall have at least five years experience in pressure stopping.

Line Stop Machinery 14" - 96" - The equipment shall be a 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 @ twice the working pressure of the pipeline and the line stopping Contractor shall have at least five years experience in pressure stopping.