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### LINE STOPPING FOR CAST IRON - DUCTILE IRON & NON WELDABLE 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 linestop 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, dewater, expose and clean the exterior of the main at the location of the line stop. If main is heavily corroded; or if utilities will interfere with fittings, support/thrust blocking, or equipment; move location up or downstream to structurally sound pipe.
  - a. Confirm pipe O.D. of mains to determine size.
  - b. Backfill; restore as requested by Owner.
2. Re-excavate; dewater. Assemble line stop fitting(s) around the main. Install drain nozzle(s) and saddle(s) to the main.
3. Pressure test per Engineer's specifications.
4. Pour concrete support and/or install thrust methods.
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 International Flow Technologies, Inc. linestop machine; open temporary valve; insert linestop plugging head into main.  
Install temporary by-pass line.
  - a. Insert downstream plugging head first.
  - b. Momentary isolation of flow could be required to install and remove stops if flow is heavy.
8. Test for shutdown at drain hot taps.
9. Cut main inside of valve boxes. Install required fitting(s) and valve(s).
10. Equalize section of pipe through drain nozzle.
11. Remove linestop equipment.
12. Install completion machine; set completion plug; remove temporary valve(s); install blind flange(s).

Drain Nozzles - Because some amount of leakage may pass line stops, a drain tap of 2" or greater shall 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 saddle plate with a integral flanged nozzle to which a tapping valve can be attached in a pressure tight manner.
  - a. The interior of the saddle plate, adjacent to and concentric with the O.D. of the nozzle, shall be grooved to retain a gasket which shall seal the saddle plate to the exterior of the Cast Iron main. This gasket shall constitute the only seal between the main and the fitting.
  - b. Saddle shall be clamped to main by minimum of two "U" shaped steel strap/stud assemblies of sufficient cross section to contain a line pressure of 200 psig.

Extent of Shutdowns - The shutdown will be accomplished by using a line stop. Because of possible internal corrosion, and 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.

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

1. Prior to ordering material, Owner shall 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 - Fitting shall be a Carbon steel linestop fitting. It shall consist of two carbon steel weldments; (1) an upper line stop flange saddle plate and (2) a lower saddle plate. Fusion epoxy coated and lined.

Installation of Line Stop Fittings - Line stopping Contractor shall wire brush and grind the exterior of the main to remove any debris, corrosion deposits, or other surface irregularities that might interfere with proper seating and sealing of each line stop fitting against each main. Any structural defects in main, service connections, appurtenances, adjacent utilities, etc., that could interfere with the line stop installation shall be immediately reported to the owner.

1. Line stopping Contractor shall fit upper and lower saddle plate assemblies to main, thoroughly checking for proper fit to main.
2. Under no circumstances shall Contractor attempt to force, reshape or bend saddle plates by excessive tightening of saddle
  - a. Any retrofitting shall be accomplished with the fitting removed from the main.

Thrust Support and Blocking - Prior to mounting temporary tapping valve and pressure tapping machinery, Contractor shall install concrete thrust and support blocking specified by Engineer. Blocking shall reach a minimum cure strength specified by Engineer before any valves or machinery shall be mounted onto the 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 carbide tipped and have a coupon retention device in the pilot drill suitable for retaining the size of coupon to be cut.

Full Bypass - Line Stop Machinery 16" - The equipment shall be a I.F.T. non folding type assembly utilizing a full size cut. pipe stability. The head shall have a sealing element which opens to fit the inside diameter of the pipe to seal the edge of the cup to the main while work is being preformed. The equipment must be rated @ 150 psi minimum.

Reduced Bypass - Line Stop Machinery 12" - 60" - The equipment shall be a folding type. The folding head shall have a sealing element which uses an expandable folding cup to fit large diameter pipe lines which are typically out of round. The cup is expanded by water pressure to help form the seal. The equipment must be rated @ 150 psi. minimum.