MERRIMACK VALLEY SERVICE LINE PRESSURE TEST PROCEDURE

FOR SELECT STEEL SERVICE TEES OFF STEEL MAINS

References:
Eversource Gas Standard OM-150, OM-050 and OM-210

Description of Project:

The purpose of this procedure is to address six live gas service lines with steel service tees off steel mains installed during the Merrimack Valley Restoration Project that currently do not have complete pressure test documentation. This procedure in intended to supplement, and not to be used in lieu of, all applicable gas standards (e.g., OM-150, OM-050 and OM-210) for the activity to be performed. Those performing the procedure are expected to possess the necessary Operator Qualifications for the tasks to be performed. Those performing the procedure are expected to follow all relevant Health, Safety and Environmental gas standards. If the individuals performing the test are also performing the excavation, facilities must be marked out and located in accordance with OM-150. Those who are excavating must secure and possess a valid Dig Safe ticket prior to commencing excavation. In addition, a Pre-Job Briefing & Hazard Assessment should be completed and documented before beginning this test procedure.

The service line should have an excess flow valve and a curb valve installed in accordance with OM-260 and CS-200. If an Excess Flow Valve and a curb valve is not present, one will need to be installed. A supervisor must be contacted for direction.

An excavation will be made at the service tap, inspecting the service tee installation, EFV, locate wire, and connection point to service piping. The meter set assembly and riser will be inspected for proper installation. Any newly installed materials will be recorded on a new Service Line Record (SLR) Form or DAR per OM-050. The pressure test will be completed following procedure A or B. A Construction Supervisor should be contacted for further instructions, if the below steps cannot be followed or if materials or original installation does not appear compliant with company standards.

Procedure A below describes the test procedure for testing six steel service tees off of steel mains utilizing natural gas as the test medium and operating the service tee perforator (also referred to as a punch or cutter) to achieve 100 percent shut off between the main and service line. Procedure A is not intended to be used for non-punch style steel tees such as the Mueller H-17500, H-17650 and H-17700 tees. Non-punch style tees will require specialized tapping and stopping equipment (e.g., new rubber stoppers on the H-17500 tee and using a reseating reamer for the H-17650 and H-17700 for most effective stop).

Procedure B below describes the test procedure for testing six steel service tees off of steel mains utilizing air or nitrogen as the test medium and separating the service line if 100 percent shut off between the main and service cannot be achieved. Procedure B can also be used for non-punch style steel tees. However, for non-punch style steel tees, specialized tapping and stopping equipment will need to be used and procedures for such equipment followed to achieve 100 percent stopping of the flow of gas into the service tee, before cutting and separating the service line.

Attachment A (EGMA, formerly CMA, Steel Tee Configurations (July 2020)) should be reviewed prior to beginning Procedure A or B as the type of tee installed will determine whether Procedure A or B is the appropriate procedure to begin with.

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PROCEDURE A- Testing service line with natural gas, and the service tee punch stopping flow of gas to the service

1. Expose the steel service tee.
2. Identify manufacturer and part number/tee style based upon the service tee documents provided as Attachment A. Do not proceed if the punch type tee exposed is not shown in the documents. Contact Gas Standards.
3. Confirm that the steel service tee is a punch style tee (i.e., the tee has a punch (also known as cutter)) that perforates the steel main. If it is not a punch type tee, STOP and contact supervisor or Gas Standards for direction.
4. Expose all points on the service where joints are present (for example, the service tee to main joint, service tee to EFV joint, EFV to service line joint, service line to riser joint).
5. Leak survey the entire service line (from gas main to end of meter set assembly) to ensure there are no connection leaks. In addition, apply leak detection fluid to all connections and visually inspect for any leakage. Address any leaks found before proceeding.
6. Confirm the service line to be tested is not fed by a low pressure main. This can be done by closing the riser valve, separating the meter set assembly from the riser valve at the insulated union, installing a pressure gauge and opening the riser valve. Observe and document the service line pressure which essentially will be the main pressure. At this point, keep the service line separated from the meter set assembly.
7. Slowly remove the steel cap from the service tee to expose the steel perforator punch. Always use caution whenever removing steel caps from tees. Follow the tee manufacturer's instructions to operate the punch to stop the flow from the gas main. For example, if the tee is a Mueller Autoperf tee, attach a Mueller H-18090 operating wrench to the tee body by first engaging the tool shaft with the hex socket in the perforator, then attaching the tool body to the body of the tee wrench tight. Then ratchet the tool shaft in the clockwise direction until the perforator contacts the main. Then, continue turning to tighten the perforator until a positive shut-off is made.
8. Check for natural gas bleed by at the punch with a combustible gas indicator. Any positive readings would be indicative that 100% seal has not been achieved at the punch. If 100% seal cannot be achieved, stop at this step and proceed to PROCEDURE B.
9. Install a pressure gauge in proximity to the service tee so that any increase in main pressure during the service line retest will be able to be noticed.
10. Open the riser valve to release any line pressure.
11. Purge the service line of natural gas using nitrogen.
12. Reinstall the service tee cap and install a Kuhlman gauge on service line. Observe for any pressure increase for 15 minutes. Any increase in pressure would be indicative that the punch is not sealed 100 percent. If 100 percent seal cannot be achieved, stop at this step and proceed to PROCEDURE B.
13. Install a pressure test configuration in the riser. The configuration should allow one to (1) introduce natural gas into the service line at a pressure of 150 psig and (2) observe the service line test pressure with a calibrated gauge with an appropriate range, with 2 psig increments. This must be achieved by isolating the Natural Gas supply from the bottle with a valve. If no gas bleed by was observed during the preceding steps, slowly introduce natural gas into the service line. Regulate natural gas to a pressure 10 psig less than the gauge measuring main line pressure. Leak survey the service line again and check for any joint leaks. If any leaks occur, safely bleed down service line pressure, address the leak and repeat Step 14. If 100 percent seal cannot be achieved, stop at this step and proceed to PROCEDURE B.
14. Increase natural gas pressure into the service line to a pressure of 150 psig while at the same time observing the main pressure on gauges installed in Step 7. Once the pressure in the service line has

stabilized at 150 psig, isolate the natural gas supply from the service line being tested by closing the natural gas supply valve and hold the pressure at 150 psig for at least 20 minutes. Observe pressure gauges on the main and the service line during this time.

If the pressure remains constant and does not drop, document the test pressure and duration on the Service Line Record. The pressure test is complete. Continue to steps 16-24 of this PROCEDURE A.

If service line pressure drops, do NOT add more natural gas and do NOT increase the natural gas supply pressure. Any drop in service pressure is an indication of leakage somewhere, (e.g., at the punch, at any joint on service line or pressure test apparatus) and an incomplete pressure test. STOP at this step in proceed to PROCEDURE B.

15. If the pressure test was complete and successful, safely bleed down the service line test pressure to atmospheric pressure.
16. Purge the service line of natural gas using nitrogen.
17. Retract service tee punch per tee manufacturer's installation instructions and purge the service line back into gas service.
18. Soap test all exposed fittings on the tee and any additional connections and take photos of all said fittings/connections.
19. Text photo to Construction Specialist.
20. Reconnect meter set, soap test connections and relight customer if possible. If not possible to relight all customer appliances, leave gas to customer shut off.
21. Complete and endorse the new Service Line Record (SLR) or DAR as per OM-050. Include a detailed sketch identifying all joints that were soap tested.
22. Return new Service Line Record to Construction Office for review by a Construction Specialist.
23. The Construction Operations Coordinator is responsible for uploading the new Service Line Record into Open Text SLR and filing the hard copy SLR in Maps and Records.
24. End of procedure.

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PROCEDURE B - Testing service line with air or nitrogen, the service tee punch stopping flow of gas to the service, and the service line will be separated from the service tee assembly

Procedure B is to be followed only if while performing PROCEDURE A, steps 13, 14 or 15 have directed one to Procedure B. Essentially, Procedure B involves
(a) physically separating the plastic portion of the service line at a point downstream of the excess flow valve, (b) pressure testing the service line from the point of disconnection to the outlet of the meter set assembly and (c) leak testing the portion of the service line from the base of the service tee at the steel main to the point of disconnection with leak detection soap at operating pressure.

1. Close riser valve. Disconnect meter assembly.
2. Remove steel service tee cap at service tee and ensure that the perforator is turned firmly to the fully closed position.
3. Purge the service line at the riser by opening the riser valve.
4. Cap the riser.
5. Cut and separate service downstream of the EFV (as close as practical to the EFV allowing for reconnect after the air test is complete). Either attach air test adapter to the cut end of the service line and pressure test from point of separation to the riser valve and riser cap; Or, remove cap and attach the test tree to the steel threaded riser, install a cap or plug at the cut service line and then pressure test from the test tree to the service line at the cut. If no EFV is installed, install correct EFV.
6. Pressure test the service line at a minimum of 150 PSIG for at least 15 minutes as required by company OM-210.
7. Reconnect the original service tee and EFV with a new connecting fitting.
8. Purge the line back into service by raising the perforator in the service tee and vent gas at the riser.
9. Soap test all exposed fittings on the tee and any additional connections and take photos of all said fittings/connections.
10. Text photo to Construction Specialist.
11. Reconnect meter set, soap test connections and relight customer if possible.
12. Complete and endorse the new Service Line Record (SLR) Form or DAR per OM-050. Include a detailed sketch identifying all joints that were soap tested.
13. Return new Service Line Record to Construction Office for review by a Construction Specialist.
14. The Construction Operations Coordinator is responsible for uploading the new Service Line Record into Open Text SLR and filing the hard copy in Maps and Records.
15. End of procedure.