UNDERGROUND REPAIRS

MUST MEET THE REQUIREMENTS OF:

CODE OF FEDERAL REGULATIONS (CFR) §

Part 192 - Transportation of Natural Gas

ARE PROCEDURES SATISFACTORY?

§192.605 Procedural manual for operations, maintenance, and emergencies

Each operator shall include the following in its operating and maintenance plan:

- (a) General. Each operator shall prepare and follow for each pipeline, a manual of written procedures…
- (b) …The manual required by paragraph (a)…**must include procedures** for the following…
- (1) Operating, maintaining, and **repairing the pipeline** in accordance with each of the requirements of this subpart and Subpart M of this part.

SERVICE / MAIN REPAIRS

Subpart M – Maintenance

§192.703 General.

(a) **No person may operate a segment of pipeline**, unless it is maintained in accordance with this subpart.

(b) Each segment of pipeline **that becomes unsafe must be replaced, repaired, or removed from service**.

(c) **Hazardous leaks must be repaired promptly**.

SERVICE / MAIN REPAIRS

§192.309 Repair of steel pipe.

(a) **Each imperfection or damage that impairs the serviceability** of a length of pipeline **of steel pipe must be repaired or removed**.

SERVICE / MAIN REPAIRS

§192.311 Repair of plastic pipe.

Each imperfection or damage that would **impair the serviceability of plastic pipe must be repaired or removed.**

WHAT ARE WE FINDING DURING INSPECTIONS?

- Operators **have no procedures** addressing **how leaks are to be repaired**.
- Most MM operators **have outside contractors perform their leak repairs.**
- Operators **are not obtaining repair records from contractors performing these leak repairs**.

WHAT DO WE EXPECT?

- Operators are required to have **approved repair procedures and records of all leaks repaired**.
- Contractors must make repairs **in accordance to operators procedures.**
- **Upon review and approval**, an operator **may adopt a contractor's repair procedures** that are acceptable under the requirements of § Part 192.
- **Contractor approved repair procedures and repairs records must be retained by operator.**

MATERIALS

§192.53 General.

Materials for pipe and components must be:

(a) **Able to maintain** the **structural integrity of the pipeline under temperature and other environmental conditions that may be anticipated**;

(b) **Chemically compatible with any gas that they transport** and with any other material in the pipeline with which they are in contact; and,

(c) **Qualified in accordance with the applicable requirements of this subpart.**

MATERIALS

§192.55 Steel pipe.

- Steel pipe is qualified for use under this part.

§192.59 Plastic pipe.

- Plastic pipe is qualified for use under this part.

§192.63 Marking of materials.

- Requirement for markings of each valve, fitting, length of pipe, and other components.

WELDING PROCEDURES

§192.225 Welding Procedures

(a) …**performed by a qualified welder**… **procedures qualified under section 5 of API 1104 …or section IX of the ASME Boiler and Pressure Vessel Code**…quality of the test **welds…shall be determined by destructive testing** in accordance with the applicable welding standard(s).

WELDING PROCEDURES

§192.225 Welding Procedures

(b) Each welding procedure **must be recorded in detail**, including the results of the qualifying tests. **This record must be retained and followed whenever the procedure is used**.

WELDING - QUALIFIED WELDERS

§192.227 Qualification of welders

(a) Qualified in accordance with **section 6 of API 1104 or section IX of the ASME Boiler and Pressure Vessel Code.**

(b) Qualified…pipe…operated at a pressure that produces a hoop stress of less than 20 percent of SMYS…under the **test set forth in section I of Appendix C of this part**. Each welder who is to make a welded **service line connection to a main must…test weld under section II of Appendix C** of this part as a requirement of the qualifying test.

JOINING MATERIALS - OTHER THAN BY WELDING.

§192.273 General.

a) The pipeline must be designed and installed so that each joint will sustain the longitudinal pullout or thrust forces caused by contraction or expansion of the piping or by anticipated external or internal loading.

(b) Each joint must be made **in accordance with written procedures** that have been proved by test or experience to produce strong gastight joints.

(c) Each joint must be inspected to insure compliance with this subpart.

FUSION - QUALIFYING PROCEDURES

§192.283 Plastic pipe. Qualifying joining procedures

(a) …**Before any written procedure established under §192.273(b)** is used for making plastic pipe joints by a heat fusion, …the procedure **must be qualified by subjecting specimen joints made according to the procedure to the following tests: - tests listed under (a)(1)(2) &(3)**.

- **FOR APPROVED JOINTS, THESE TEST ARE MADE BY THE MANUFACTURER IN MOST CASES.**

MECHANICAL JOINTS - QUALIFYING PROCEDURES

§192.283 Plastic pipe. Qualifying joining procedures

(b) Mechanical joints. **Before any written procedure established under §192.273(b)** is used for making mechanical plastic pipe joints…the procedure **must be qualified**… **according to the procedure to the following tensile test**: - tests listed under (b)(1)-(7).

- **ONCE AGAIN, FOR APPROVED JOINTS, THESE TEST ARE MADE BY THE MANUFACTURER IN MOST CASES.**

FUSION / MECHANICAL JOINTS QUALIFIED PERSONS

§192.285 Plastic pipe; qualifying persons to make joints.

(a) No person may make a plastic pipe joint unless **that person has been qualified** under the applicable joining procedure by:

(1) Appropriate training or experience in the use of the procedure; **and**

(2) **Making a specimen joint** from pipe sections joined **according to the procedure** that **passes the inspection** and test set forth **in paragraph (b)** of this section.

FUSION / MECHANICAL JOINTS REQUALICATION OF PERSONS

§192.285 Plastic pipe; qualifying persons…

(c) …must be **requalified** under…applicable procedure, **if during any 12-month period** that person:

(1) **Does not make any joints** under that procedure; or

(2) Has **3 joints or 3 percent of the joints** made, whichever is greater, under that procedure that are **found unacceptable** by testing under §192.513.

FUSION / MECHANICAL JOINTS REQUALICATION OF PERSONS

- MOST OPERATORS AND/OR CONTRACTORS **DO NOT KEEP TRACK OF ALL JOINTS MADE**.

- THEY HAVE FOUND IT IS EASIER **TO QUALIFY INDIVIDUALS** UNDER THE APPLICABLE JOINING PROCEDURE **ANNUALLY** AS REQUIRED IN §192.285 (b).

FUSION / MECHANICAL JOINTS REQUALICATION OF PERSONS

§192.285 Plastic pipe; qualifying persons…

(d) Each operator shall establish a method to determine that **each person making joints in plastic pipelines in the operator's system is qualified** in accordance with this section.

WHAT ARE WE FINDING DURING INSPECTIONS?

- Most MM operators **do not perform welding, plastic fusion, or use mechanical joints** on their system. Most of these tasks are **performed by contractors**.
- Operators **are not obtaining qualified procedures and qualification records from contractors** performing these tasks on their piping system.

WHAT DO WE EXPECT?

- Operators that have **welding, plastic fusion, or the use of mechanical joints performed on their system must have qualified procedures and qualification records** for all individuals performing these tasks.
- Once again, **upon review and approval**, an operator **may adopt a contractor's qualified procedures and qualification records** that are acceptable under the requirements of § Part 192. **Both must be retained by operator.**

REINSTATING SERVICE LINES

§192.725 Test requirements for reinstating service lines.

(a) Except…in paragraph (b)…, each disconnected service line must be tested…, before being reinstated.

(b) **Each service line…disconnected from the main must be tested from the point of disconnection to the service line valve…as a new service line**, before reconnecting. However, if provisions are made to maintain continuous service, such as by installation of a bypass, any part of the original service line used to maintain continuous service need not be tested.

SHUT OFF PROCEDURES

§192.615 Emergency plans.

(a)(6) **Emergency shutdown** and pressure reduction ...**to minimize hazards to life or property.**

- **Procedures for shutdown** of your pipeline system necessary to minimize hazards.
- **Maps or records of valve locations** to **identify sections** of the system that will be **affected by the closing of each valve.**

SHUT OFF PROCEDURES

§192.615 Emergency plans.

(a)(6) cont.

- Confirm that the **shutdown was effective**.
- **Procedures for purging**.
- Notify affected customers.

CAUTION : **Area may not be safe after valves have been closed to stop gas flow.**

EXAMPLE:

Gas can accumulate in and under buildings.

TURN-ON & RELIGHT PROCEDURES

§192.615 Emergency plans.

(a)(9) Safely restoring any service outage.

- **Procedures for turn-on and relight of service to customers.**
- **Maps or records of valve locations to identify sections** of the system that will be **affected by the opening of each valve.**
- **Procedures for purging**.
- **Resurvey area of repaired leak for additional leaks**.

WHAT ARE WE FINDING DURING INSPECTIONS?

- Limited services disconnected.
- **No procedures** for addressing test requirements **for reinstating disconnected service lines.**
- **No procedures** addressing shut off, turn-on, purging, or relights.
- **Valves are not on the maps** to identify what areas they affect or isolate.

WHAT DO WE EXPECT?

- **Procedures** for addressing **test requirements for reinstating disconnected service lines.**
- **Record of pressure test** on disconnected service that has been reinstated.
- **Procedures** addressing shut off, turn-on, purging, and relights.
- **Valves on your maps** to identify what areas they affect or isolate.