

**Guidance on Carrying Out Requirements in the Gas  
Distribution Integrity Management Rule**

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Pipeline Safety: Integrity Management Program for Gas Distribution  
Pipelines

**Office of Pipeline Safety  
Pipeline and Hazardous Materials Safety Administration (PHMSA)  
U.S. Department of Transportation**

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## **Guidance on Carrying Out Requirements in the Gas Distribution Integrity Management Rule**

This document provides guidance to help large and small, master meter, and LPG operators implement the requirements of subpart P of Part 192. Guidance for large and small operators begins at section I and for master meter and LPG operators at section V of this document. We request comment on this draft guidance.

### *I. Guidance on Knowledge of the Distribution System Infrastructure*

To understand the distribution system's infrastructure an operator should know the location of its system and the materials used in constructing the system and other information such as location, material composition, piping sizes, construction methods, date of installation, soil conditions, pressure (operating and design), operating experience, performance data, condition of the system, and any other characteristics important to a thorough understanding of applicable threats and their contribution to risks. Initially, an operator may base this understanding on information the operator gained from past design and operations. An operator should also understand how the pipeline system has performed. Understanding the gas distribution system infrastructure is necessary to understand the performance of a pipeline system. An operator should collect and retain information concerning:

- (1) Leakage;
- (2) Corrosion;
- (3) Cathodic protection trends;
- (4) Evidence of material deterioration; and

(5) Incidents.

## *II. Guidance on Leak Management*

An effective leak management program should consider the following factors:

- (1) How local conditions and system knowledge affect the frequency and type of leak surveys.
- (2) Methods/criteria for evaluating the severity of leaks and need for action.
- (3) Records necessary to permit trending and identification of underlying problems.
- (4) Performance metrics and the types of analyses in which they should be considered.

## *III. Guidance on Enhanced Damage Prevention*

An effective damage prevention program may include the following elements:

- (1) Establishing and maintaining effective communications between stakeholders from receipt of an excavation notification until successful completion of the excavation.
- (2) Supporting and partnering with stakeholders, including excavators, other operators, locators, designers, and local government in damage prevention efforts.
- (3) Reviewing the adequacy of internal performance measures regarding persons performing locating services and quality assurance programs.
- (4) Participating in the development and implementation of effective employee training programs to ensure that operators, the one-call center, the enforcing agency, and the excavators have partnered to design and implement training for the employees of operators, excavators, and locators.
- (5) Actively participating in public education for damage prevention activities.

- (6) Encouraging communication with state authorities to resolve issues.
- (7) Developing a process to ensure full cooperation with state enforcement actions.
- (8) Fostering and promoting the use of improving technologies that may enhance communications, underground pipeline locating capability, and gathering and analyzing information about the accuracy and effectiveness of locating programs.
- (9) Reviewing and analyzing the effectiveness of each element of the enhanced damage prevention program, including a means for implementing improvements identified by such program reviews.

#### *IV. Guidance on Pipe Replacement Programs*

Pipe replacement programs, addressing those portions of a distribution pipeline system presenting the highest risk, can be an effective risk management process.

#### *V. Guidance for Master Meter and LPG Operators*

Master meter and LPG distribution operators should consider the following actions to assure the integrity of their distribution pipeline systems:

##### (1) Knowledge of system infrastructure

Identify the approximate location of system piping and equipment on maps, drawings, or sketches using best-available information. Arrange to update the maps, drawings, or sketches as better information about the location of the system becomes available through other work (e.g., repairing leaks, excavations to install other utilities). Arrange to update the maps, drawings, or sketches to show the kind of pipe and equipment (i.e., bare steel,

galvanized steel, coated steel, copper, plastic, cast iron, line valves) and record data from any new installations of pipe or equipment.

## (2) Identify threats

Consider the following questions for each threat category and check all that apply. Each threat category including at least one check will be considered a threat of concern to be addressed under the distribution integrity management program.

### (a) Corrosion

- (i) Does the system consist of steel pipe that is not protected from corrosion (e.g., pipe that lacks coating, wrapping or galvanic protection?)
- (ii) Does the system consist of non-steel pipe but include steel fittings or connectors that are not protected from corrosion?
- (iii) Does the system consist of cast iron pipe?

### (b) Natural Forces

- (i) Are exterior above-ground steel pipe/equipment not grounded (e.g., protected from lightning)?
- (ii) Are portions of the system susceptible to snow or ice slide impacting above ground piping, meter and regulator sets, or meter header piping?
- (iii) Are exterior above-ground portions of the system potentially subject to other forces of nature (e.g., earthquakes, floods or waterway scouring, severe flooding leading to uprooting of near-by trees) due to unique local weather conditions?

(iv) Are buried portions of the system located in areas where soil movement or subsidence is likely (e.g., earthquakes, landslide, flood-induced erosion)?

(c) Excavation Damage

(i) Are portions of the system buried in areas where digging might occur without your knowledge or control?

(d) Other outside force damage

(i) Are exterior, above-ground portions of the system located in areas where they could be subject to damage from vehicles or other expected activities?

(ii) Is the system located in an area with greater than usual exposure to the possibility of wildfires?

(iii) Is there a history of vandalism to the pipeline system, or is the local area subject

to vandalism of a kind that could damage the pipeline system?

(e) Material or welds

(i) Has any of your piping experienced frequent leakage?

(ii) Has the manufacturer of your piping or fittings (appurtenances) contacted you regarding material defects?

(f) Equipment

(i) Does the system include any equipment other than valves, meters, and service regulators?

(g) Operations

(i) Does system operation require the manipulation of any equipment other than valves that are permanently installed as part of the system?

(3) Evaluate and prioritize risk

The relative uniformity of master meter, LPG, and very small distribution systems makes this element unnecessary.

(4) Identify and implement measures to mitigate risks

For all threats identified as threats of concern (where at least one box is checked in (2) above) and for all parts of the system as described in (1) above, verify that actions are being taken or requirements are in place intended to protect against the threat. This should include, at a minimum, the actions required by Part 192, the following additional general monitoring actions, and for each identified threat of concern the actions listed for that threat:

(a) General Monitoring, additional patrols:

(i) For lines that have experienced problems in the past, periodically walk the lines to identify at-risk pipe locations, and smell for signs of gas.

(ii) Periodically walk the lines to check for active excavation or signs of excavation of which you were unaware.

(b) Corrosion

- (i) Coat and cathodically protect pipe installed after August 1, 1971.
- (ii) Coat and cathodically protect all areas of pipe experiencing active corrosion.
- (iii) Annually monitor and test cathodic protection.
- (iv) Inspect rectifiers six times per year.
- (v) Annually inspect above-ground pipe.
- (vi) Inspect buried pipe exposed by any digging for evidence of corrosion.

(c) Natural Forces

- (i) Conduct more frequent patrols to identify conditions that may adversely affect pipe or components.
- (ii) Take actions to eliminate the hazard or reduce the threat.

(d) Excavation Damage

- (i) Physically control access to the pipeline, or
- (ii) Implement a damage prevention program including the following elements:
  - (1) A means of receiving and recording notification of planned excavation activities.



- (2) Requirements to locate and mark the pipe in areas where buried piping exists and excavation is planned.
- (3) Provision for actual notification of persons who give notice of their intent to excavate in areas where buried pipe is located of the type of temporary markings and how to identify them.
- (4) Provision for inspection of pipelines during and after excavation if the operator has reason to believe they could be damaged.

(e) Other outside force damage

- (i) Identify portions of the system potentially subject to damage by signs and/or distinctive colors.
- (ii) Install vehicle barriers as appropriate.
- (iii) Conduct patrols to identify at-risk pipe and components and mitigate the risk to the pipe.

(f) Material or welds

- (i) Replace small diameter cast iron pipe not adequately supported .
- (ii) Replace brittle plastic pipe or other materials unsuitable for gas service.
- (iii) Implement the recommended actions in any notice received from a pipe/fitting manufacturer regarding material defects.
- (iv) Monitor more frequently any portions of the system experiencing frequent leakage.

(v) Where the operator has a history of problems with pipe or fittings, replace the pipe or fittings when practical (e.g., when excavations for other reasons expose the pipe).

(g) Equipment

(i) Implement a program to qualify personnel who operate equipment under 49 CFR Part 192, Subpart N.

(h) Operations

(i) Implement a program to qualify personnel who operate equipment under 49 CFR Part 192, Subpart N.

(ii) Ensure personnel are aware of the precautions to take to prevent overpressuring a low pressure system, when stopping the flow of gas, and to prevent unsafe gas-air mixtures.

(5) Measure performance, monitor results, and evaluate effectiveness

(a) Keep a record of the number of hazardous leaks either eliminated or repaired including the date and the apparent cause of the leak.

(b) Keep a record of any instances in which the system is damaged by excavation.

(c) Keep a record of the elimination of undesirable materials and components from the gas system.

(d) Keep a record of the reduction in lost and unaccounted for gas.

(6) Continuing Evaluation and Improvement

Revise this checklist whenever changes are made to the system or significant changes occur in the local environment to determine if threats of concern have been eliminated or if new threats have been introduced. Modify the mitigative measures in paragraph (4) as appropriate.

(7) Report results

Consistent with the exclusions in 49 CFR §191.9 (incident reports) and §191.11 (annual reports), operators of master meter and LPG distribution systems need not report performance measures.