

Distribution INTEGRITY MANAGEMENT PROGRAM

Gas Piping Technology Committee Z380

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GUIDE MATERIAL APPENDIX G-192-8

DISTRIBUTION INTEGRITY MANAGEMENT PROGRAM (DIMP)

(See §§192.1001, 192.1003, 192.1005, 192.1007, 192.1011, and 192.1015)

NOTES TO GUIDE MATERIAL

1. At the request of PHMSA and the National Association of Pipeline Safety Representatives (NAPSR), the original guide material in this appendix was created and published before either the Notice of Proposed Rulemaking (NPRM) or the final rule was issued. This is outside the normal GPTC practice of preparing guide material after the final rule has been published.
2. In the NPRM issued by PHMSA (73 FR 36015, June 25, 2008), several areas were addressed that had not been anticipated. The most significant of these were identified as notes in the guide material originally issued.
3. The final rule, Integrity Management Program for Gas Distribution Pipelines, was issued by PHMSA (74 FR 63906) on December 4, 2009. Consequently, the guide material in this appendix has been revised to reflect the changes necessary to address the differences between the final rule and the NPRM.

Reserved

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1 INTRODUCTION

1.1 Scope.

- (a) This guide material is intended to assist operators with development of a Distribution Integrity Management Program (DIMP), including the written plan, and compliance with Federal Regulations §§192.1001, 192.1003, 192.1005, 192.1007, 192.1011, and 192.1015 on DIMP. It provides operators with practices that may be considered as they develop and maintain a DIMP specific to their gas distribution systems.
- (b) Distribution pipeline systems and associated operating practices can vary widely. Examples of system differences include: materials used, age, manner of construction, operation and maintenance practices, and operating environments (natural and man-made). This guidance recognizes that there is wide diversity among distribution systems and is therefore flexible, allowing operators to identify considerations dealing with their unique threats and to select actions suited to their specific needs.
- (c) The options in this guidance are intended to provide the operator with a selection of possible choices to use in improving the integrity of its distribution system. Operators may not need to consider or perform every step presented. It is not intended that an operator evaluate every option or provide justification or reasons why options were not implemented.
- (d) Section 192.1015 imposes different requirements for master meter and small liquefied petroleum gas (LPG) operators than for other operators. The appropriate portions of this guide material are valid for those operators.

1.2 How to use this guide material.

The guide material is organized to coincide with the seven required elements of a DIMP. The order in which the guidance is presented does not imply the order in which it should be applied. However, the operator needs to address each element in some way. Once an operator determines how it can best accomplish distribution system integrity, the guide material may be used to support or direct the operator's approach. The operator is cautioned that the guide material may not anticipate all conditions that may be encountered, and the operator is not restricted from using other methods to comply with the regulations.

Two sample DIMP approaches are given in Section 10.

1.3 Overview.

- (a) The objective of a DIMP is to manage the integrity of a gas distribution system. As discussed in detail in Section 5, an essential part of a DIMP is a risk evaluation of the distribution system. One approach to risk evaluation is to group facilities by common traits or problems, and then perform a risk ranking. This process allows the grouping of facilities that experience similar threats to be risk-ranked together. Then, if necessary, attention can be focused on developing measures that address the greatest risks.
- (b) After identifying the problems, the operator should consider the concept of grouping facilities when first developing its DIMP. Such groupings could significantly affect how the operator assembles data about its system (see Section 3) and how it approaches its threat analysis (see Section 4).
- (c) The operator should also recognize that the development of the DIMP may be an iterative (or repeating) process. That means each time a cycle (e.g., gather knowledge, identify threats, rank risks, take action to reduce risk, measure performance) is completed, areas needing additional data, analyses, or actions may become apparent. For example, the initial general knowledge of the system may be used to group facilities, identify the applicable threats, and begin the risk analysis. In attempting to complete the risk analysis, the operator may determine the need for additional information. The operator may also determine that the facility groupings need to be redefined, such as by subdividing groups or combining groups.

2 ELEMENTS OF A DISTRIBUTION INTEGRITY MANAGEMENT PLAN

2.1 General.

Seven elements have been identified as the essential components of a DIMP, except as modified for those operators identified in §192.1015(a). Collectively, these elements establish a program that should reasonably manage the integrity of distribution pipeline systems on a going-forward basis. These elements are as follows.

- (a) Knowledge (see Section 3).
- (b) Identify threats (see Section 4).
- (c) Evaluate and rank risk (see Section 5).
- (d) Identify and implement measures to address risks (see Section 6).
- (e) Measure performance, monitor results, and evaluate effectiveness (see Section 7).
- (f) Periodic evaluation and improvement (see Section 8).
- (g) Report results, except for master meter and small LPG operators (see Section 9).

2.2 Develop and implement a written plan.

Federal Regulations require that each distribution operator prepare and implement a written plan as a primary component of its DIMP. The function of the plan is to document how each of the applicable seven elements will be addressed and implemented. The DIMP should be complete and address required elements by the implementation dates in §§192.1005 and 192.1015. The plan should be concise, but still be sufficient for operator personnel to understand and implement the program on a consistent basis, and is not intended to include extensive technical justifications or detailed process descriptions.

3 KNOWLEDGE

3.1 General.

- (a) Information, such as the materials and type of construction, the operating conditions of the pipe or facility, and other relevant factors within the surroundings in which the system operates, is referred to as the “knowledge of the distribution system.”
- (b) General knowledge of the system will assist the operator to identify threats and establish which facilities or groups of facilities¹, if desired, should be subject to risk evaluation (see Sections 4 and 5).
- (c) Records of the distribution systems may exist in many forms (e.g., paper, electronically) and in the knowledge and experience of operations, maintenance, construction, installation, design, or engineering personnel. Information from these sources may be evaluated to assist in developing an operator’s DIMP.
- (d) The operator should use the best information available to make decisions about what is in the existing system and to assess the applicable threats and risks to the gas distribution system. In some cases, an operator may be unable to determine the materials or characteristics of some of the components in the system. This may be due to lost records, systems gained through mergers or acquisitions without complete records, or other reasons. For example, the year of installation might be used to make such decisions about piping material, joint type, coating type, or repair methods used.
- (e) Information about an existing system should be updated when new or better information becomes available. This information should be gathered during existing operating or maintenance activities and installation of new facilities on an existing infrastructure. At a minimum, §192.1007(a)(5) requires the location and material of construction for new piping and appurtenances to be recorded.

¹ Facilities may be individual components or units (e.g., a particular district regulating station, an entire low-pressure distribution system). Groups of facilities generally have common traits (e.g., physical similarities such as the same pipe material or a particular type of valve) or common problems (e.g., small diameter cast iron pipe experiencing cracking, regulators that will not hold set point).

- (f) Operators may not have all desired records initially, but can still develop a DIMP. An operator would not have to dig up its system just to collect information, but when an operator inspects the pipe wherever it is exposed, the operator should use the occasion to record and evaluate any distribution system unknowns that are available at that location.
- (g) To the extent possible, the operator should use information collection procedures that are already in place. New collection activities should be developed only if the existing procedures are not adequate for the operator's DIMP. If the information is adequate, the manner in which it is compiled and organized may need modification to make it more usable.

3.2 DOT Annual Report information.

- (a) Basic knowledge of what is in the distribution system is contained in the operator's annual report to DOT (PHMSA Form F 7100.1-1). All past report data is available for download from the PHMSA-OPS On-Line Library website <http://www.phmsa.dot.gov/pipeline>. The operator should review the source and accuracy of the most recent annual report information and take actions to ensure that the information is current and accurate. Report forms and instructions are available for download at the PHMSA-OPS website <http://www.phmsa.dot.gov/pipeline/library/forms>.
- (b) "Part B - System Description" of the Annual Report provides a breakdown of the mains and service lines in the distribution system by material, diameter, and installation decade.
- (1) Section 1 of Part B – System Description specifically provides the total miles of main and number of service lines in the following material categories:

PART B - SYSTEM DESCRIPTION					Report miles of main and number of services in system at end of year.					
1. GENERAL										
	STEEL				PLASTIC	CAST/ WROUGHT IRON	DUCTILE IRON	COPPER	OTHER	OTHER
	UNPROTECTED		CATHODICALLY PROTECTED							
	BARE	COATED	BARE	COATED						
MILES OF MAIN										
NO. OF SERVICES										

- (2) Sections 2 and 3 of Part B require the operator to break down the total miles of main and the total number of services by diameter ranges. The diameter ranges for steel mains and service lines are not separated by the presence of cathodic protection or coating.

2. MILES OF MAINS IN SYSTEM AT END OF YEAR						
MATERIAL	UNKNOWN	2" OR LESS	OVER 2" THRU 4"	OVER 4" THRU 8"	OVER 8" THRU 12"	OVER 12"
STEEL						
DUCTILE IRON						
COPPER						
CAST/WROUGHT IRON						
PLASTIC						
1. PVC						
2. PE						
3. ABS						
OTHER						
OTHER						
SYSTEM TOTALS						