



**Pipeline and Hazardous Materials Safety Administration
Office of Pipeline Safety**

**Gas Integrity Management
Inspection Manual**

**Inspection Protocols
with Results Forms**

August 2013

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Explanation of Protocol Format

Each protocol element will have top-tier protocols that address the high level requirements. The regulatory requirement upon which the protocol is based is contained in brackets; e.g., [§192.905(a)]

Each top-tier protocol will have detailed "sub-tier" protocols which collectively lead the inspector to draw overall conclusions about compliance with the top-tier protocol. The regulatory requirement, upon which each sub-tier protocol is based, is also contained in brackets.

Notes on protocols:

- The typical sentence structure used in the protocols follows the form of "Verify that [describe the requirement]." The use and meaning of the term "verify" is expanded upon below.
- PHMSA will "verify" an operator's compliance status with respect to each requirement. In order to perform this verification, PHMSA will inspect the operator's documented processes and procedures in order to determine if a program has been established that complies with rule requirements. In addition, PHMSA will inspect an operator's implementation records to determine if the operator is effectively implementing its programs and processes. The purpose of the PHMSA verification/inspection is not to perform a quality check of every integrity related activity. The PHMSA inspection is conducted in the form of an audit. As a result, the PHMSA inspection will typically perform an inspection of selected operator records sufficient in breadth and depth to give the inspection team adequate understanding regarding the degree of an operator's commitment to compliance with applicable requirements and/or the degree to which the operator's program has been effective with respect to achieving compliance. PHMSA may use any number of inspection or audit techniques to identify potential compliance issues. Program documents may be inspected to determine if adequate processes have been developed and documented to the degree necessary for competent professionals to understand and effectively implement the process with results that are consistent and repeatable. For example, one technique that might be used by the inspection team is a "vertical slice" in which a specific covered segment or pipeline system is selected to perform a detailed inspection of every aspect of integrity management, thus following a specific example through the entire process of integrity management. Based on those reviews, PHMSA will identify potential non-compliances with rule requirements. PHMSA can not and will not certify nor conclude that an operator is in full compliance with rule requirements, even if the inspection does not identify any areas of non-compliance. Operators are wholly responsible for compliance with regulations.
- References to regulatory requirements may include references to specific rule sections/paragraphs and/or to industry standards that are invoked in the rule. As specified in §192.7, any requirement invoked by reference is a requirement of the rule as though it were set out in full in the regulation.
- Protocols are subject to change without notice.
- Protocols are an initial guide for use by PHMSA inspectors during Integrity Management inspections. Inspectors will develop additional questioning during the course of the inspection to investigate the specifics of an operator's program. Protocols are not to be construed as an exhaustive list of questions that may be presented to operators during an inspection.
- Protocols are made publicly available as a courtesy to operators as they develop their Integrity Management program, as well as other stakeholders.

Operator Contact and System Information

Operator Information:

Name of Operator (legal entity):	
Headquarters Address:	
Company Official:	
Phone Number:	
FAX Number:	
PHMSA Operator ID:	

Persons Interviewed:

Persons Interviewed <i>(list primary contact first)</i>	Title	Phone Number	Email

PHMSA and State Representatives:

Inspector Name	Office/Organization	Days Present

System Description:

Operator ID	System Name and Brief Description	States	InTRA/Inter	Fed. Insp. Jurisdiction

System Description Narrative:

Protocol Area A. Identify HCAs

- [A.01](#) Program Requirements
- [A.02](#) Potential Impact Radius
- [A.03](#) Identified Sites
- [A.04](#) Identification Using Class Locations (Method 1)
- [A.05](#) Identification Using Potential Impact Radius (Method 2)
- [A.06](#) Identification and Evaluation of Newly Identified HCAs, Program Requirements
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A.1 Program Requirements

Verify that the methods defined in §192.903 High Consequence Area (1) and/or §192.903 High Consequence Area (2) are applied to each pipeline for the identification of high consequence areas. [§192.905(a)]

A.1.a. Verify the operator’s integrity management program includes documented processes on how to implement methods (1) and (2) in order to identify high consequence areas. [§192.905(a)]

A.01.a. Inspection Results (Type an X in the applicable box below. Select only one.)	
	No Issues Identified
	Potential Issues Identified (explain in summary)
	Not Applicable (explain in summary)

A.1.a. Statement of Issue (Leave blank if no issue was identified.)

A.1.b. Verify that the operator’s process requires that the method used for each portion of the pipeline system be documented. [§192.905(a)]

A.01.b. Inspection Results (Type an X in the applicable box below. Select only one.)	
	No Issues Identified
	Potential Issues Identified (explain in summary)
	Not Applicable (explain in summary)

A.1.b. Statement of Issue (Leave blank if no issue was identified.)

A.1.c. Verify that the operator's integrity management program includes system maps or other suitably detailed means documenting the pipeline segment locations that are located in high consequence areas. [§192.905(a)]

A.01.c. Inspection Results (Type an X in the applicable box below. Select only one.)	
	No Issues Identified
	Potential Issues Identified (explain in summary)
	Not Applicable (explain in summary)

A.1.c. Statement of Issue (Leave blank if no issue was identified.)

A.1.d. Review HCA records to verify that the operator completed identification of pipeline segments in high consequence areas by December 17, 2004. [§192.907 and §192.911(a)]

A.01.d. Inspection Results (Type an X in the applicable box below. Select only one.)	
	No Issues Identified
	Potential Issues Identified (explain in summary)
	Not Applicable (explain in summary)

A.01.d. Statement of Issue (Leave blank if no issue was identified.)

A.01 Documents Reviewed (Tab from bottom-right cell to add additional rows.)			
Document Number	Rev	Date	Document Title

A.01 Inspection Notes

A.2 Potential Impact Radius

Verify that the definition and use of potential impact radius for establishment of high consequence areas meets the requirements of §192.903. [§192.905(a)]

A.2.a. Verify that the operator’s formula for calculation of the potential impact radius is consistent with §192.903 requirements ($r = 0.69 \cdot (p \cdot d^2)^{0.5}$) and that the pressure used in the formula is based on maximum allowable operating pressure (MAOP).

- i. For gases other than natural gas, verify that the operator has documented processes for the use of ASME B31.8S-2004, Section 3.2 to calculate the impact radius formula [§192.903 Potential Impact Radius, §192.905(a)]

A.02.a. Inspection Results (Type an X in the applicable box below. Select only one.)	
	No Issues Identified
	Potential Issues Identified (explain in summary)
	Not Applicable (explain in summary)

A.2.a. Statement of Issue (Leave blank if no issue was identified.)

A.2.b. In cases where potential impact circles are used to identify high consequence areas, verify that the program requires that high consequence areas include the area extending axially along the length of the pipeline from the outermost edge of the first potential impact circle to the outermost edge of the last contiguous potential impact circle for those potential impact circles that contain either an identified site or 20 or more buildings intended for human occupancy. [§192.903 High Consequence Area (3)]

A.02.b. Inspection Results (Type an X in the applicable box below. Select only one.)	
	No Issues Identified
	Potential Issues Identified (explain in summary)
	Not Applicable (explain in summary)

A.02.b. Statement of Issue (Leave blank if no issue was identified.)

A.02 Documents Reviewed (Tab from bottom-right cell to add additional rows.)			
Document Number	Rev	Date	Document Title

A.02 Inspection Notes

A.3 Identified Sites

Verify that the operator’s identification of identified sites includes the sources listed in §192.905(b) for those buildings or outside areas meeting the criteria specified by §192.903, and that the source of information selected is documented. [§192.903 Identified Sites, §192.905(b) and §192 Appendix E, I(c)]

A.3.a. Identified sites must include the following: [§192.903 Identified Sites, §192.905(b)]

- i. Outside areas or open structures occupied by 20 or more people on at least 50 days in any 12 month period (days need not be consecutive),
- ii. Buildings occupied by 20 or more people on at least 5 days a week for 10 weeks in any 12 month period (days and weeks need not be consecutive), and
- iii. Facilities occupied by persons who are confined, have impaired mobility, or would be difficult to evacuate.

A.03.a. Inspection Results (Type an X in the applicable box below. Select only one.)	
	No Issues Identified
	Potential Issues Identified (explain in summary)
	Not Applicable (explain in summary)

A.3.a. Statement of Issue (Leave blank if no issue was identified.)

A.3.b. Identified sites must be identified using the following sources of information: [§192.905(b)]

- i. Information from routine operation and maintenance activities and input from public officials with safety or emergency response or planning responsibilities
- ii. In the absence of public official input, the operator must use one of the following in order to identify an identified site:
 - 1. Visible markings such as signs, or
 - 2. Facility licensing or registration data on file with Federal, State, or local government agencies, or
 - 3. Lists or maps maintained by or available from a Federal, State, or local government agency and available to the general public.

A.03.b. Inspection Results (Type an X in the applicable box below. Select only one.)	
	No Issues Identified
	Potential Issues Identified (explain in summary)
	Not Applicable (explain in summary)

A.03.b. Statement of Issue (Leave blank if no issue was identified.)

A.03 Documents Reviewed <i>(Tab from bottom-right cell to add additional rows.)</i>			
Document Number	Rev	Date	Document Title

A.03 Inspection Notes

A.4 Identification Using Class Locations (Method 1)

If the operator’s integrity management program relies on §192.903 High Consequence Area definition (1) for identification of high consequence areas, verify compliance with the following:

A.4.a. Verify the integrity management program includes Class 3 and Class 4 piping locations as high consequence areas consistent with the criteria of §192.5(b)(3), §192.5(b)(4), and §192.5(c). [§192.903 High Consequence Area (1)(i) and (ii)]

A.04.a. Inspection Results (Type an X in the applicable box below. Select only one.)	
	No Issues Identified
	Potential Issues Identified (explain in summary)
	Not Applicable (explain in summary)

A.4.a. Statement of Issue (Leave blank if no issue was identified.)

A.4.b. For Class 1 and Class 2 locations with the potential impact radius greater than 660 feet, verify the integrity management program includes piping locations as high consequence areas if the area within the associated potential impact circle contains 20 or more buildings intended for human occupancy.[§192.903 High Consequence Area (1)(iii)]

- i. As an option for PIRs greater than 660 feet, the definition of high consequence area may be based on a prorated building count for buildings intended for human occupancy within a distance of 660 feet (200 meters) from the centerline of the pipeline as calculated using the following formula:
[§192.903 High Consequence Area (4)]

Building Count within 660 feet = $20 \times [660 \text{ (ft)} / \text{PIR (ft)}]^2$ or
 Building Count within 200 meters = $20 \times [200 \text{ (m)} / \text{PIR (m)}]^2$

- 1. If the option for use of a prorated number of buildings has been used for identification of high consequence areas, verify that the program acknowledges that use of the prorated allowance is only available to operators until December 17, 2006. [§192.903 High Consequence Area (4)]

A.04.b. Inspection Results (Type an X in the applicable box below. Select only one.)	
	No Issues Identified
	Potential Issues Identified (explain in summary)
	Not Applicable (explain in summary)

A.4.b. Statement of Issue (Leave blank if no issue was identified.)

A.4.c. Verify the program includes as a high consequence area, any area in Class 1 and Class 2 piping locations where the potential impact circle contains an identified site. [§192.903 High Consequence Area (1)(iv)]

A.04.c. Inspection Results (Type an X in the applicable box below. Select only one.)	
	No Issues Identified
	Potential Issues Identified (explain in summary)
	Not Applicable (explain in summary)

A.04.c. Statement of Issue (Leave blank if no issue was identified.)

A.04 Documents Reviewed (Tab from bottom-right cell to add additional rows.)			
Document Number	Rev	Date	Document Title

A.04 Inspection Notes

A.5 Identification Using Potential Impact Radius (Method 2)

If the operator’s integrity management program relies on §192.903 High Consequence Area definition (2) for identification of high consequence areas, verify compliance with the following:

A.5.a. Verify the integrity management program includes piping locations as high consequence areas if the area within a potential impact circle contains 20 or more buildings intended for human occupancy: [§192.903 High Consequence Area (2)(i)]

- i. As an option for PIRs greater than 660 feet, the definition of high consequence area may be based on a prorated building count for buildings intended for human occupancy within a distance of 660 feet (200 meters) from the centerline of the pipeline as calculated using the following formula: [§192.903 High Consequence Area (4)]

Building Count within 660 feet = $20 \times [660 \text{ (ft)} / \text{PIR (ft)}]^2$ or
 Building Count within 200 meters = $20 \times [200 \text{ (m)} / \text{PIR (m)}]^2$

- 1. If the option for use of a prorated number of buildings has been used for identification of high consequence areas, verify that the program acknowledges that use of the prorated allowance is only available to operators until December 17, 2006. [§192.903 High Consequence Area (4)]

A.05.a. Inspection Results (Type an X in the applicable box below. Select only one.)	
	No Issues Identified
	Potential Issues Identified (explain in summary)
	Not Applicable (explain in summary)

A.5.a. Statement of Issue (Leave blank if no issue was identified.)

A.5.b. Verify the program includes piping locations as high consequence areas if the area within the potential impact circle contains an identified site. [§192.903 High Consequence Area (2)(ii)]

A.05.b. Inspection Results (Type an X in the applicable box below. Select only one.)	
	No Issues Identified
	Potential Issues Identified (explain in summary)
	Not Applicable (explain in summary)

A.05.b. Statement of Issue (Leave blank if no issue was identified.)

A.05 Documents Reviewed <i>(Tab from bottom-right cell to add additional rows.)</i>			
Document Number	Rev	Date	Document Title

A.05 Inspection Notes

A.6 Identification and Evaluation of Newly Identified HCAs, Program Requirements

Review the operator’s integrity management program to verify processes are in place for evaluation of new information that may show that a pipeline segment impacts a high consequence area. [§192.905(c)]

A.6.a. Verify the operator’s integrity management program includes documented processes for how new information that shows a pipeline segment impacts a high consequence area is identified and integrated with the integrity management program. The program is to identify and analyze changes for impacts on pipeline segments potentially affecting high consequence areas. Issues the program must consider include but are not limited to:[§192.905(c)]

- i. Changes in pipeline maximum allowable operating pressure (MAOP),
- ii. Pipeline modifications affecting piping diameter,
- iii. Changes in the commodity transported in the pipeline,
- iv. Identification of new construction in the vicinity of the pipeline that results in additional buildings intended for human occupancy or additional identified sites,
- v. Change in the use of existing buildings (e.g., hotel or house converted to nursing home),
- vi. Installation of new pipeline,
- vii. Change in pipeline class location (e.g., class 2 to 3) or class location boundary,
- viii. Pipeline reroutes
- ix. Corrections to erroneous pipeline center line data.

A.06.a. Inspection Results <i>(Type an X in the applicable box below. Select only one.)</i>	
	No Issues Identified
	Potential Issues Identified <i>(explain in summary)</i>
	Not Applicable <i>(explain in summary)</i>

A.06.a. Statement of Issue <i>(Leave blank if no issue was identified.)</i>

A.06 Documents Reviewed <i>(Tab from bottom-right cell to add additional rows.)</i>			
Document Number	Rev	Date	Document Title

A.06 Inspection Notes

Date: _____

Michigan Public Service Commission - Gas Safety Program

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Inspection Type: Protocol A Supplemental

Case Number _____

Company: _____

Code	Question	Condition	EFA
192.935 (d) (1)	<p>Rule applies to: operators of transmission pipelines below 30% SMYS located in an HCA and/or below 30% SMYS located in a Class 3 or 4 but not in an HCA.</p> <p>Does operator only use qualified personnel (see 192.915) for work that could adversely affect the integrity of these segments, such as marking, locating, and direct supervision of known excavation work?</p> <p>Does operator participate in MISS-DIG in locations where these segments are present?</p>	<input type="checkbox"/>	<input type="checkbox"/>
192.935 (d) (2)	<p>Rule applies to: operators of transmission pipelines below 30% SMYS located in an HCA and/or below 30% SMYS located in a Class 3 or 4 but not in an HCA.</p> <p>Does operator either monitor excavations near these pipelines or conduct patrols as required by 192.705 of the pipeline at bi-monthly intervals?</p> <p>Does operator investigate these pipelines to determine if mechanical damage has occurred when finding any indication of unreported construction activity?</p>	<input type="checkbox"/>	<input type="checkbox"/>
192.935 (d) (3)	<p>Rule applies to: operators of transmission pipelines below 30% SMYS located in a Class 3 or 4 but not in an HCA.</p> <p>Does operator perform semi-annual leak surveys (quarterly for unprotected pipelines or cathodically protected pipe where electrical surveys are impractical)?</p>	<input type="checkbox"/>	<input type="checkbox"/>