Report to Congress: Evaluation of Expanding Pipeline Integrity Management Beyond High-Consequence Areas and Whether Such Expansion Would Mitigate the Need for Gas Pipeline Class Location Requirements

Executive Summary

Section 5 of the Pipeline Safety, Regulatory Certainty, and Job Creation Act of 2011 (the Act) (Pub. L. 112-90) requires the Secretary of Transportation to evaluate and issue a report on whether integrity management (IM) program requirements should be expanded beyond high consequence areas (HCAs) and, specifically for gas transmission pipelines regulated under 49 Code of Federal Regulations (CFR) Part 192, whether such expansion would mitigate the need for class location designations and corresponding requirements.

In October 2010 and August 2011, the Pipeline and Hazardous Materials Safety Administration (PHMSA) published notices in the Federal Register to solicit comments on revising the pipeline safety regulations applicable to hazardous liquid and natural gas transmission pipelines including expansion of IM program requirements beyond HCAs. In general, industry representatives and pipeline operators were opposed to any expansion of HCAs, whereas public interest groups were in favor of doing so but against curtailing class location requirements.

PHMSA has carefully considered the input and comments. At this time PHMSA plans to propose an approach that balances the need to provide additional protections for persons within the potential impact radius (PIR) of a pipeline rupture (outside of a defined HCA), and the need to prudently apply IM resources in a fashion that continues to emphasize the risk priority of HCAs. PHMSA, therefore, is considering an approach that would require selected aspects of IM programs (namely, integrity assessments and repair criteria) to be applicable for non-HCA segments. For hazardous liquid pipelines, PHMSA would propose to apply these requirements for most non-HCA pipeline segments. For gas transmission pipelines, PHMSA would propose to apply these requirements where persons live and work and could reasonably be expected to be located within a pipeline PIR. Under this approach, PHMSA would propose requirements that integrity assessments be conducted, and that injurious anomalies and defects be repaired in a timely manner, using similar standards in place for HCAs. However, the other program elements of a full IM program requirements

contained in 49 CFR Part 192, Subpart O, or 49 CFR Section 195.452 (as applicable) currently are not mandatory for non-HCA segments.

The Act also required the Secretary of Transportation to evaluate if expanding IM outside of HCAs, as discussed above, would mitigate the need for class location requirements. In August 2013, PHMSA published a notice in the Federal Register (78 FR 53086) soliciting comments on expanding IM program requirements and mitigating class location requirements. Comments in the notice were solicited on whether:

1. PHMSA should increase the existing class location design factors in densely populated areas with building over four stories?
2. Class locations should be eliminated and a single design factor used, if IMP requirements are expanded beyond HCAs?
3. Should there be only a single design factor for pipeline areas where there are large concentrations of populations along the pipeline; such as schools, hospitals, nursing homes, multiple-story buildings, stadiums, and shopping malls, as opposed to rural areas like deserts and farms where there are fewer people?

A Class Location Workshop was held on April 16, 2014, to discuss the notice and comments were received from stakeholders, including industry representatives, pipeline operators, state regulatory agencies, and the public. Based on PHMSA's evaluation of written comments and stakeholder input at the workshop, PHMSA is further evaluating several alternatives for changing the current regulations with respect to defining class locations and how to approach changes in class location, when they occur. The class location design, class change, and operational inspection approaches under further evaluation include:

Single Design Factor

PHMSA solicited comments on the use of a single design factor for all pipeline class locations as an alternative to the current method for determining class locations. The proposal was to use a higher design factor where there are large concentrations of populations, such as schools, hospitals, nursing homes, multiple-story buildings, stadiums, and shopping malls.

The comments on the use of a single design factor were overwhelmingly negative. Commenters felt that to mitigate class locations by going to a single design factor approach impacts too many of the existing requirements in 49 CFR Part 192 including design, construction, and operational

inspections; would be complicated to implement; and may even result in a decrease in safety in populated areas.

Sliding Mile Based upon Potential Impact Radius

The current sliding mile methodology for determining a class location unit could be replaced by a methodology based on the HCA PIR. An additional safety factor would be considered, if this method were proposed. One operator proposed a method similar to the PIR approach. They called it the Class Location Circle approach. The Class Location Circle would be either 300 feet in radius or the PIR of the pipeline whichever results in a larger area. Also, another operator proposed a redefinition of the class location densities over those currently found in 49 CFR Section 192.5.

Expand Class Locations

Gas transmission pipelines are currently classified as Class 1, 2, 3, or 4 locations. A Class 4 location is defined as a class location where buildings of four (4) or more stories are prevalent. Heavily developed urban areas have many buildings over four stories high. While some commenters felt that the existing class location approach should be retained and expanded to include additional class locations for densely populated urban areas with buildings over four stories tall, a majority of industry and operator commenters were against adding additional class locations. The industry representatives and pipeline operators felt that new class locations with design factors lower than the current 0.4 design factor for Class 4 locations would make it difficult to continue to supply natural gas to the newly classified areas.

Bifurcated Approach

Interstate Natural Gas Association of America (INGAA) submitted a written request to keep the current method for existing pipelines, but add a new method using the PIR approach for new construction and replaced pipelines. This approach would utilize the HCA PIR type approach for new or replaced pipelines only and would keep the current class location definitions and applications for existing pipelines.

INGAA's bifurcated approach would allow class location changes to existing pipe including pre-Code pipe with additional operational and integrity measures, and new pipelines with a single design factor in all class locations to have additional material, construction and integrity measures.

Class Location Changes – Allow Additional Integrity Management Assessments

One alternative being considered is to retain the current method for determining class locations but to revise the regulations for addressing changes in class locations. Such changes might include

alternatives in addition to pipe replacement, retesting, or de-rating, such as incorporation of integrity management practices to validate the condition of the pipe and monitor the pipe within an integrity management process. Such an approach would essentially codify the fundamental requirements currently contained in Class Location Special Permits, thus providing regulatory certainty.

No Change

Retain the current 49 CFR Part 192 methods for determining class location (definition) and class location changes along with the requirements that correspond with those designations, including MAOPs, pressure testing, operational inspections and inspection intervals.

Future PHMSA Actions on Class Locations

Overall, the majority of stakeholder responses suggested that PHMSA not to change the current class location approach for class locations and class location changes as population increases used for establishing maximum allowable operating pressure (MAOP) and operation and maintenance (O&M) surveys for existing pipelines. For new transmission pipelines some industry groups and operators supported some type of bifurcated approach for existing and new pipelines as described above.

In any future approach that might change the way class locations are defined, designed, constructed, operated, and reviewed when the class location changes, PHMSA will consider issues that it is addressing in workshops on new construction quality management systems (QMS) and safety management systems (SMS). PHMSA will also consider inspection findings, IM assessments, and lessons-learned from past incidents.

Currently, § 192.611 allows one class change (one class bump) without the operator replacing pipe when population density near the pipeline increases. Any changes to the definition and usage of class locations in 49 CFR Part 192 will require a very thorough process. Class locations affect all gas pipelines, including transmission (interstate and intrastate), gathering, and distribution pipelines, whether they are constructed of steel pipe or plastic pipe in determining MAOPs, design pressures, pipeline repairs, high consequence areas (HCAs), and O&M inspection type and intervals. Class locations affect 12 subparts and 28 sections of 49 CFR Part 192 for gas pipelines. The subparts and sections are listed and discussed in Sections 3.1.2.4 and 3.7.2.2.

PHMSA's future actions on revising class locations must include the safety concerns and input from all affected stakeholders. PHMSA will continue to listen to and consider:

- All stakeholder concerns and approaches submitted on the docket;
- More efficient and practical class location approaches that improve safety and avoid minor pipe replacements where safety can be maintained with other robust measures such as incorporating IM principles.

PHMSA is proposing through a notice of proposed rulemaking (NPRM) an elevated approach for applying selected IM program elements (i.e. assessments and remediation on a continuing interval) based upon findings from lessons learned, accident investigations, assessments, IM, and O&M to areas outside HCAs defined in this report as moderate consequence area (MCAs). This integrity assessment approach to less densely populated areas will be addressed in proposed NPRMs for both Gas and Hazardous Liquid Pipelines.

PHMSA plans to further evaluate the feasibility and the appropriateness of each alternative, continue to reach-out to all stakeholders, consider input from all sources, and consider future rulemaking if a cost-effective and safety focused approach can be developed.