



U.S. Department
of Transportation
**Pipeline and Hazardous
Materials Safety
Administration**

Administrator

1200 New Jersey Ave., S E
Washington, DC 20590

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The Honorable Deborah A.P. Hersman
Chairman
National Transportation Safety Board
490 L'Enfant Plaza East, SW
Washington, DC 20594

Dear Chairman Hersman:

This letter provides an update and requests closure on the National Transportation Safety Board (NTSB) Safety Recommendation P-98-2, stated below, which was issued to the Pipeline and Hazardous Materials Safety Administration (PHMSA) on April 30, 1998, as a result of the NTSB's special investigation report, *Brittle-like Cracking in Plastic Pipe for Gas Service*.

P-98-2

Determine the extent of the susceptibility to premature brittle-like cracking of older plastic piping [pre 1980 pipe materials] that remains in use for gas service nationwide. Inform gas system operators of the findings and require them to closely monitor performance of the older plastic piping and to identify and replace, in a timely manner, any of the piping that indicates poor performance based on such evaluation factors as installation, operating, and environmental conditions; piping failure characteristics; and leak history.

PHMSA has acted through the following initiatives designed to address the recommendation through a comprehensive and data-driven approach involving multiple stakeholders:

- PHMSA published four advisory bulletins in 1999 (2), 2002, and 2007, notifying operators and States of the risks associated with plastic pipe and the need to monitor performance and to take action(s) to remedy problems. The fourth bulletin expanded on the information provided in the three prior bulletins by listing two additional pipe materials with poor performance histories relative to brittle-like cracking. The owners and operators of natural gas pipeline distribution systems were also encouraged to review the three previous bulletins in their entirety.
- PHMSA and the American Gas Association (AGA) jointly established the Plastic Pipe Database Committee (PPDC), which remains active today, in response to the NTSB Special Investigation Report, *Brittle-Like Cracking in Plastic Pipe for Gas Service*¹ and Recommendation P-98-2. NTSB was invited to sit on the PPDC and has provided valuable input along with members representing State regulators, trade associations, operators and manufacturers of plastic piping systems. PPDC's original scope was to

¹ NTSB Report No. NTSB/SIR-98/01, National Transportation Safety Board, Washington, D.C., April 1998.

collect and analyze data voluntarily submitted by operators on plastic pipe through-wall failures associated with brittle-like cracking and other issues with older vintage materials. PHMSA's participation and encouragement has been critical in persuading the PPDC to expand its scope to further monitor performance of older materials as well as more proactively monitor performance of newer materials through the following ways:

- Data is being collected and analyzed for failures in all pipe and appurtenances associated with plastic piping systems, such as failures involving metal body couplings used on plastic services, as well as failures in other joints and fittings, to develop more accurate statistical data for analyzing and trending.
- To the extent possible, PPDC reporting forms are being updated to be more consistent with the latest PHMSA annual report and incident forms.
- To the extent possible, PPDC data is being normalized against PHMSA mileage data to help provide a better correlation.
- More PPDC data and analysis is being provided in the public domain.
- PHMSA finalized the Distribution Integrity Management Program (DIMP) rule, published December 4, 2009 (74 FR 63925), amending the Federal pipeline safety regulations, 49 *Code of Federal Regulations* Part 192, to require operators of gas distribution pipelines to develop and implement integrity management programs. The intent of DIMP is for operators to have a comprehensive, data-driven, and risk-based program in place to assess risks associated with their distribution systems. Operators are required to address all the risks found through their DIMP program, including those involving brittle-like cracking. States are key stakeholders in successful implementation and regulation of DIMP, and it should be noted a number of States already have comprehensive systems and data collection/analysis in place that follow the intent of DIMP. PHMSA has held a number of meetings with all States to help provide guidance for successful implementation or to further enhance already strong programs.
- PHMSA developed a *Failure Data Needs Pipe and Appurtenance Matrix* outlining essential pipe and appurtenance criteria to consider when making decisions on replacement, installation practices and/or changes, and to determine likely problems associated with installation, manufacturing and history of the pipe and/or appurtenance. The matrix was provided to PHMSA State Programs to improve public safety and maximize transparency in association with DIMP.
- PHMSA has proactively partnered with the National Association of Pipeline Safety Representatives (NAPSR) through the creation and facilitation of the PHMSA/NAPSR Plastic Pipe *Ad Hoc* Committee with a direct focus on implementing appropriate regulatory measures to address plastic pipe and appurtenance failures and encourage development of improved testing protocols, advances in technology, and updates to related American National Standards Institute certified (ANSI-certified) standards. The Committee has reviewed PHMSA annual report data and State databases for side-by-side comparisons, discussed American Society of Testing Materials (ASTM) International efforts toward development of improved polyethylene (PE) pipe and fitting ANSI-certified standards, and disseminated information to other States for additional review and discussion as needed.
- Lastly, PHMSA continues to actively participate in the ASTM International standards committees and a number of steering committees consisting of members representing

operators, manufacturers, trade associations and researchers of plastic piping systems with the intent to promote efforts to develop processes and testing qualification requirements to maximize and enhance safe, long-term performance of pipe and appurtenances through improvement of ANSI-certified standards, specifications, and Code requirements that require long-term test methods that take into account actual in-service stress states that can be correlated to the pipe and/or appurtenance's performance and intended application. There is also an ongoing initiative through ASTM to reorganize plastic piping materials and appurtenances into separate standards specific to the characteristics of each material. These ANSI-certified standards can and will address new and updated technologies in a transparent, consistent and unified approach that will further promote safety and economics throughout the industry.

Between the initiatives described above, in particular the implementation of DIMP and knowing where these older materials are still in service, their impact on relative risk, and continued monitoring to assess their affect on long-term integrity, we are confident the intent of the recommendation has been fully addressed. PHMSA and its State partners will continue to support efforts in "raising the bar" to improve service and safety to pipeline customers.

PHMSA works aggressively to close all open recommendations issued by the NTSB. If you or your staff have any questions or need assistance, please do not hesitate to contact me at 202-366-4433.

Regards,

A handwritten signature in black ink, appearing to read 'C. Quarterman', with a long horizontal flourish extending to the right.

Cynthia L. Quarterman