U.S. Department
of Transportation

**Research and
Special Programs
Administration**

The Administrator

400 Seventh Street, S.W.
Washington, D.C. 20590

DEC 11 2002

The Honorable Carol J. Carmody
Acting Chairman
National Transportation Safety Board
490 L'Enfant Plaza East, SW
Washington, DC 20594

Dear Chairman Carmody:

This letter updates the Research and Special Programs Administration's (RSPA) response to the National Transportation Safety Board (NTSB) Safety Recommendations P-98-1, P-98-2, and P-98-3. The first and third of these recommendations address notification of pipeline system operators, States and territories of the results and findings of the NTSB special investigation into accidents that involved plastic pipe currently in use. These recommendations also call for RSPA to require operators to address the issues. The second recommendation requests that the RSPA determine the extent of the susceptibility of older pipe to premature brittle-like cracking.

RSPA has taken a number of actions to publicize the phenomenon of brittle-like cracking of plastic pipe manufactured from the 1960s through the early 1980s. RSPA's actions included several initiatives. We immediately published two advisory bulletins to notify operators and States of the risks such pipe creates. We worked with industry and the States to identify existing pipe and to create a database of plastic pipe failures. This year, we published a third advisory bulletin to alert operators of the need to monitor the performance of such pipe and to take necessary action to remedy problems. Copies of all three Advisory Bulletins are enclosed for your information.

I am also pleased to advise you of two research projects funded by RSPA in September which should advance our ability to map and locate plastic pipe. These projects will include developing a 3D digital mapping system for detecting steel and plastic underground utilities and leaks in all types of soil, and developing magnetic plastic polyethylene gas pipe that is easy to locate. In the next few months, RSPA will solicit white papers for additional research projects in the areas of improved material performance and enhanced operations, controls, and monitoring.

I request that Safety Recommendations P-98-1, P-98-2, and P-98-3 be reclassified as "CLOSED - Acceptable Action" based on the information provided in the enclosures. If we can be of further assistance, please contact me or Patricia Klinger, Director of External Communications, at (202) 366-4831.

Sincerely yours,

Ellen G. Engleman

Enclosures

cc: Robert Chipkevich, NTSB
Rod Dyck, NTSB

# Updated Responses to
# NTSB Safety Recommendations
# P-98-1, P-98-2, and P-98-3

**P-98-1** Notify pipeline system operators who have installed polyethylene gas piping extruded by Century Utility Products, Inc., from Union Carbide Corporation DHDA 2077 Tan resin of the piping's poor brittle-crack resistance. Require these operators to develop a plan to closely monitor the performance of this 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.

**P-98-2** Determine the extent of the susceptibility to premature brittle-like cracking of older plastic piping (beyond that piping marketed by Century Utility Products, Inc.) 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.

**P-98-3** Immediately notify those States and territories with gas pipeline safety programs of the susceptibility to premature brittle-like cracking of much of the plastic piping manufactured from the 1960s through the early 1980s and of the actions that the Research and Special Programs Administration (RSPA) will require of gas system operators to monitor and replace piping that indicates unacceptable performance.

Status: OPEN - Acceptable Responses

Previous response to NTSB on 03/17/99.

Actions: 03/11/99 - Issued Advisory Bulletin to gas pipeline operators warning of potential failure due to brittle-like cracking of certain plastic pipe manufactured by Century Utility Products, Inc. (64 FR 12211).
03/11/99 - Issued Advisory Bulletin to gas pipeline operators warning of potential failure due to brittle-like cracking of older plastic pipe (64 FR 12212).
05/15/99 - Established "Joint Government-Industry Plastic Pipe Study Committee."
01/01/01 - Plastic Pipe Database Committee (PPDC) established to develop and maintain a voluntary data collection process on plastic pipe failures.

11-26-02 - Issued an Advisory Bulletin to gas pipeline operators to expand our recommendations for operators' management of pipe subject to brittle-like cracking (67 FR70806).

Updated Responses:

In Safety Recommendations P-98-1 and P-98-3, NTSB asked that RSPA notify pipeline operators, States and territories of the susceptibility to premature cracking of pipe manufactured between the 1960s and the 1980s and, in particular, of the susceptibility of pipe extruded by Century Utility Products, Inc. In addition, NTSB recommended that RSPA require operators to develop plans to monitor the performance of the piping in question and to identify and replace any piping that indicated poor performance.

In response to these two recommendations, RSPA issued two Advisory Bulletins in March 1999 to warn owners and operators of natural gas distribution systems of the susceptibility to premature brittle-like cracking of much of the plastic pipe manufactured from the 1960s through the early 1980s. A third Advisory Bulletin was published on November 26, 2002 (67 FR 70806). The Advisory Bulletin reiterates the problems with brittle-like cracking of older plastic pipe and highlights the need for gas system operators to monitor and replace piping that indicates unacceptable performance. This new advisory recommends that all owners and operators of natural gas distribution systems identify all plastic pipe installed in the 1980s. RSPA distributes all Advisory Bulletins and regulatory updates to all States and territories with gas pipeline safety programs as part of its monthly State mailing. This information is also posted on the OPS web site at "ops.dot.gov." RSPA believes the Advisory Bulletin process is the best method to inform operators of safety issues requiring immediate action.

Although RSPA has not specifically required operators to develop plans to monitor and replace piping that indicates poor performance, RSPA has conducted several surveys of the States concerning oversight of the operators with known Century Pipe and of their replacement efforts. Since 1997, RSPA has sought information on gas distribution systems using polyethylene pipe manufactured by Century Utility Products, Inc. In a letter to NTSB's Rod Dyck on January 16, 1997, RSPA reported that following a review of accidents nationwide, only six States identified operators using Century pipe in their systems. The other States have no known Century pipe. On October 31, 2002, the Office of Pipeline Safety's Central region office reported that the operators have been aggressive in replacing Century pipe and that they have developed plans and programs to ensure the safe operation of pipelines. The status of replacement pipe in the Central region States follows:

- Iowa - All known Century pipe was replaced in 2001.
- Illinois - Of the 74,000 feet of Century pipe identified, 18,500 feet have been replaced and the final 55,500 feet are scheduled for replacement by April 30, 2003.
- In Michigan - one operator with approximately 740,000 feet of Century pipe in service has replaced 45,000 feet in the last four years and overall 140,000 feet in the last 16 years. A study by this operator indicates that third-party damage caused more leaks to the Century pipe than the inherent characteristics of the pipe.
- Minnesota - approximately 100,000 feet of service lines and 95,000 feet of main have been replaced in the last four years. Approximately 190,000 feet of service lines and 640,000 feet of main are left to be replaced.
- North Dakota - All known Century pipe has been replaced. The operator was required to have a replacement program by the State.
- South Dakota - 42,000 feet has been replaced in the last four years with approximately 38,000 feet of Century pipe remaining in service. The operator is conducting leak detection surveys four times per year until all the pipe is replaced.

RSPA believes that the three Advisory Bulletins and the progress made by the operators to replace the identified pipe fully meets the intent of P-98-1 and P-98-3.

In Safety Recommendation P-98-2, NTSB asked RSPA to determine the extent of the susceptibility to premature brittle-like cracking of older plastic piping (beyond that piping marketed by Century Utility Products, Inc.) that remain in use for gas service nationwide. To directly address the issue of the susceptibility of older plastic piping to brittle-like cracking, RSPA invited pipeline operators, industry trade organizations, and States to participate in a special committee. In May 1999 a meeting was convened with representatives from the RSPA, the American Gas Association (AGA), the American Public Gas Association (APGA), the Plastics Pipe Institute, the Gas Research Institute, and Industry. The group was referred to as the Joint Government-Industry Plastic Pipe Study Committee.

This Committee reviewed the knowledge base within the pipeline industry and determined that the data necessary to definitely identify all polyethylene pipe did not exist. It was found that gas operators have not maintained data on the manufacturer(s) of the plastic pipe installed in their systems through the years. Although the data available was limited, the Committee identified several types of polyethylene pipe materials that are known to exhibit a susceptibility to brittle-like cracking, including:

- Century Utility Products, Inc. products.
- Low-ductile inner wall "Aldyl A" piping manufactured by E. I. Dupont Company prior to 1973.
- Polyethylene gas pipe designated PE 3306. (As a result of poor performance this designation was removed from ASTM D-2513.)

This finding led to the formation of the Plastic Pipe Database Committee (PPDC) to develop a process for gathering data on future plastic pipe failures. It was at this time that the NTSB and the States (including members from the National Association of Pipeline Safety Representatives (NAPSR) and the National Association of Regulatory Commissioners (NARUC)) were invited to participate. The PPDC is coordinating the creation of a database of in-service plastic piping material failures with the objective of identifying trends in the performance of these materials. The AGA manages the database on behalf of the PPDC. As of January 25, 2002, approximately 140 companies were actively participating in the program. According to the AGA, these companies operate about 55% of all installed plastic main and about 70% of all installed plastic service lines in the United States. The PPDC has requested that the AGA and the APGA encourage additional participation, focusing on companies that may have declined to participate because they have had few, if any, plastic material failures. The PPDC is also seeking data from individual States that have instituted data collection efforts.

The data will allow the RSPA, the PPDC, and the gas system operators to identify failure trends that may be susceptible to brittle-like cracking and to further understand the phenomenon. The data supplied by participants in the PPDC initiative will be analyzed to determine the frequency and causes of plastic material failures unrelated to third-party damage and will provide an accurate picture of the performance of plastic pipe.

RSPA is also pleased to announce two research projects, funded in September 2002, which should advance our ability to map and locate plastic pipe. These projects will include developing a 3D digital mapping system for detecting steel and plastic underground utilities and leaks in all types of soil, and developing magnetic plastic polyethylene gas pipe that is easier to locate. In the next few months, RSPA will solicit white papers for additional research projects in the areas of improved material performance and enhanced operations, controls, and monitoring.

RSPA believes that the continuing data collection efforts of the PPDC along with RSPA's commitment to identify and fund research in areas specifically addressing NTSB Safety Recommendations will keep these issues active and eventually meet the full intent of P-98-2.

Action Requested: Based on the information provided above, RSPA requests that NTSB Safety Recommendations P-98-1, P-98-2, and P-98-3 be reclassified as "CLOSED-Acceptable Action."