U.S. Department
of Transportation

**Pipeline and Hazardous
Materials Safety Administration**

Administrator

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

AUG - 7 2006

The Honorable Mark V. Rosenker
Acting Chairman
National Transportation Safety Board
490 L'Enfant Plaza East, SW
Washington, DC 20594

Dear Chairman Rosenker:

This letter requests the closure of pipeline safety recommendation P-02-01. The NTSB recommended that the PHMSA establish quantitative criteria, based on engineering evaluations, to determine whether a wrinkle may be allowed to remain in a pipeline. PHMSA has developed criteria for the evaluation of wrinkle bends and believes that we have satisfactorily addressed the Board's concerns.

The recommendation resulted from a pipeline rupture and release of fuel oil near Chalk Point, Maryland. The NTSB found that the probable cause of the accident was a fracture in a buckle in the pipe that was undiscovered because the data from an in-line inspection tool was incorrectly interpreted by the inspection contractor as a T-piece. In response to this recommendation and accident, PHMSA conducted two studies, developed and issued an information sheet to inspectors, and has ongoing research on wrinkle bends.

In 2002, PHMSA contracted Michael Baker Jr., Inc., and its subcontractors, Systems, Services, and Designs, Inc., and Berkeley Engineering and Research, Inc., to complete a study on the effects of corrosion metal loss on wrinkles and buckles in steel pipelines. The study focused on the ability of in-line inspection to detect corrosion-related defects within the deformed pipe section and evaluate the development of criteria for evaluation of wrinkles and buckles with general metal loss due to corrosion. The study presented several conclusions: (1) the more severe the deformation, the more serious the defect, and the more probable that metal loss exists; (2) the more severe the deformation, the more probable the metal loss will not be detected by metal loss devices; and (3) the use of established integrity methods should result in derating or repairing the pipeline long before fatigue causes any concern. In October 2004, PHMSA distributed the enclosed final report, "Pipe Wrinkle Study," to the PHMSA inspector workforce.

PHMSA asked the American Society of Mechanical Engineers (ASME) to develop criteria for the evaluation of wrinkle bends. ASME completed this criteria and PHMSA placed a summary on its website for use by all operators (copy enclosed). This summary can be viewed at: http://www.phmsa.dot.gov/news/index.html, under "News and Information." ASME plans to incorporate the criteria in the next edition of standard ASME B31.4, Pipeline Transportation Systems for Liquid Hydrocarbons and Other Liquids.

To ensure PHMSA inspectors are aware of the threats posed by wrinkle bends and integrate this knowledge into their investigative protocols. PHMSA issued the enclosed inspector information sheet in February 2006. This document includes the definition of wrinkle, the background and history of wrinkle bends, and inspection criteria.

PHMSA continues to conduct research in an effort to learn more about the cause of wrinkle bends and the threat they pose to pipelines. For example, PHMSA is currently studying integrity management for wrinkle bends and buckles. This study seeks validation of the available direct assessment methodologies for: (1) the external corrosion and stress-corrosion cracking: (2) the development of improved modules to assist operators in controlling stress-corrosion cracking: (3) the improvement of approaches to manage the integrity of systems with wrinkle bends and buckles: and (4) the viable approaches to control running fractures to help operators minimize rupture consequences. PHMSA plans to complete the study this year.

PHMSA requests that NTSB classify this Safety Recommendation "Closed-Acceptable Action."

If you have any questions, concerns, or comments, please feel free to contact me or Stacey Gerard, Assistant Administrator/Chief Safety Officer at 202-366-4433.

Sincerely,

Tom Barrett

Thomas J. Barrett

Enclosures

cc: Robert Chipkevich, NTSB
Rod Dyck, NTSB