



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, S.W.  
Washington, DC 20594

Dear Chairman Hersman:

I am sending you this letter to request closure on three open pipeline safety recommendations issued by the National Transportation Safety Board (NTSB) to the Pipeline and Hazardous Materials Safety Administration (PHMSA). The 2005 safety recommendations were issued to PHMSA following a safety study conducted by the NTSB on Supervisory Control and Data Acquisition (SCADA) in liquid pipelines, NTSB/SS-05/02.

PHMSA has been in contact with the NTSB throughout the development of the Control Room Management (CRM) Rule. After several years of analytical work, PHMSA held public workshops on June 27, 2006 and May 23, 2007, as best practice forums to address fatigue, man-machine interface, and qualifications and training. The Notice of Proposed Rule-Making (NPRM) "Pipeline Safety: Control Room Management/Human Factors" was published on September 12, 2008. After PHMSA considered 144 comments to the NPRM, the Technical Advisory Committees Meeting on December 11, 2008, resulted in a nearly unanimous positive vote for CRM regulations. The Final Rule was published in the Federal Register (Vol. 74, No. 231, Page 63310) on December 03, 2009. Under the Final Rule, affected pipeline operators must define the roles and responsibilities of controllers and provide controllers with the necessary information, training, and processes to fulfill these responsibilities. Operators must also implement methods to prevent controller fatigue. The CRM final rule further requires operators to manage SCADA alarms, assure control room considerations are taken into account when changing pipeline equipment or configurations, and review reportable incidents or accidents to determine whether control room actions contributed to the event.

The CRM final rule addresses three of the 2005 NTSB safety recommendations. In consideration of the regulatory requirements contained in the Final Rule and as noted in the descriptions below, PHMSA is requesting closure on these open safety recommendations: P-05-1, P-05-2, and P-05-3.

The Safety Recommendation P-05-1 asked that PHMSA require operators of hazardous liquid pipelines to follow the American Petroleum Institute Recommended Practice 1165 (API RP 1165), published for the use of graphics on the Supervisory Control and Data Acquisition screens.

API RP 1165 focuses on the design and implementation of displays used for the display, monitoring, and control of information on pipeline SCADA Systems. The primary purpose is to document industry best practices that provide guidance to a pipeline company or operator who wants to select a new SCADA system, or update or expand an existing SCADA system. This API RP 1165 assists pipeline companies and SCADA system developers in identifying items that are considered best practices when developing human machine interfaces. Design elements that are discussed include, but are not limited to, hardware, navigation, colors, fonts, symbols, data entry, and control/selection techniques.

In our January 2007 report to the Congress on our Controller Certification (CCERT) Project, PHMSA identified several areas for enhancing safety including improved graphics on SCADA screens. Section 12 of the Pipeline Inspection, Protection, Enforcement, and Safety Act of 2006 (PIPES Act) requires PHMSA to issue regulations requiring operators to use API RP 1165. The CRM final rule addresses both the congressional direction and the NTSB recommendation on the use of graphics.

The CRM final rule requires pipeline operators to assure that new SCADA displays and displays for SCADA systems that are expanded or replaced meet the provisions of the consensus standard API RP 1165 governing such displays, which is incorporated by reference. Operators are required to apply API RP 1165, unless the operator demonstrates that certain provisions are not applicable for the resident SCADA system.

Safety recommendation P-05-2 asked that PHMSA require pipeline companies to have a policy for the review/audit of alarms.

In our January 2007 report to the Congress on the CCERT Project, PHMSA identified several areas for enhancing safety including management of alarm systems. The PIPES Act requires PHMSA to issue regulations requiring operators to review and audit alarm systems. The CRM final rule addresses both the congressional direction and the NTSB recommendation on use and review of alarm systems.

The CRM final rule requires pipeline operators to develop written alarm management plans. These plans must include monthly reviews of data points that have been taken off scan or have had forced or manual values for extended periods. Operators will also need to verify correct alarm set-points, eliminate erroneous alarms, and review their alarm management plans at least annually. Operators will also be required to monitor the content and volume of activity being directed to their controllers (including alarms and actions directed to controllers from sources other than the SCADA system) at least annually.

The American Petroleum Institute has established a committee to develop a recommended practice on Alarm Management. Recommended Practice 1167 is currently under development. The gas industry trade associations are also preparing guidance material to their industry sector. PHMSA will participate in and monitor the development of this guidance and best practice material, and consider such material in the development of operator inspection guidance.

Safety recommendation P-05-3 asked that PHMSA require controller training to include simulator or non-computerized simulations for controller recognition of abnormal operating conditions, in particular, leak events.

In our January 2007 report to the Congress on the CCERT Project, PHMSA identified several areas for enhancing safety, including improved training. Section 19 of the PIPES Act requires PHMSA to issue regulations requiring operators to enhance controller training. The CRM final rule addresses both the congressional direction and the NTSB recommendation on controller training.

Training is an important element of this rule. In many ways, training needs for controllers are different and broader than those for other pipeline employees. Existing operator qualification requirements (subpart N of part 192 and subpart G of part 195) address training and qualification for specific tasks meeting certain criteria (called "covered tasks"). Controllers require training that goes beyond specific tasks. They must be able to recognize abnormal and emergency events from the indications and alarms that these events will produce through SCADA.

The CRM final rule requires that controller training be sufficient to obtain a working knowledge of the pipeline system, especially during the development of abnormal conditions when emergency response actions are warranted. In addition, controllers are to be trained for pipeline operating setups that are periodically, but infrequently used, and provided an opportunity to review relevant procedures in advance of their application. Controller training must also include the use of simulators or non-computerized (e.g., tabletop exercises) simulations for training in the identification of abnormal operating conditions. These requirements will assure that controllers receive the training recommended by NTSB, and required by the PIPES Act, while allowing operators the flexibility to design training programs that fit their operations.

PHMSA continues to work aggressively to address all open recommendations issued by the NTSB. If you, or your staff, have any questions, please feel free to contact me at 202-366-4433.

Regards,

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

Cynthia L. Quarterman