



U.S. Department  
of Transportation

**Pipeline and  
Hazardous Materials Safety  
Administration**

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

NOV 10 2005

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 explains how our August 10 Advisory Bulletin on pilot-operated relief valves (copy enclosed) relates to the safety and reliability of these valves. We recently met with members of your staff, Rod Dyck, Associate Director, Pipeline Division, and Robert Trainor, Associate Director, Hazardous Materials Division, and they suggested an explanation would be a helpful addition to our August 23 letter which requested closure of Recommendation P-02-04 based on publication of the Advisory Bulletin.

Recommendation P-02-04 resulted from a 1999 gasoline pipeline accident in Bellingham, Washington which the National Transportation Safety Board (NTSB) attributed, in part, to improper configuration of a pilot-operated relief valve. A key finding in the NTSB's report was the operator's testing procedure was inadequate to reveal the pilot had been reconfigured improperly and would not work reliably. Based on this finding and the recommendation, the Advisory Bulletin provides six steps that operators' valve inspection and testing procedures should include. The steps help guide compliance with relevant rules (49 CFR 195.262(c) and 195.428) and ensure the valves will work properly after installation and pilot reconfiguration.

The first step includes quality assurance and control measures for proper valve installation. Operators are to review relevant information and make sure the valve is compatible with particular pipeline characteristics and conditions. Also, they are to make sure the valve conforms to the purchase order and manufacturer's model, service, and configuration specifications. Lastly, they are to ensure that activation of the pilot valve at the set pressure opens the in-line valve. Opening the in-line valve confirms correct configuration of the pilot and ensures the test approximates actual operation of the relief valve.

The second step concerns reconfiguration or repair of the pilot assembly on previously installed valves. For this work, our personnel qualification rules (49 CFR Part 195, Subpart G) require operators to employ personnel with appropriate training, knowledge, skills, and abilities. The Advisory Bulletin adds that operators are to do the work according to the valve manufacturer's specifications. More important, they are to ensure that activation of the pilot valve at the set pressure opens the in-line valve.

The Honorable Mark V. Rosenker

However, triggering a relief valve could be risky if the valve's vent piping is not connected to a holding tank, as may be the case on a few older pipelines. The Advisory Bulletin provides that if venting would be unsafe or environmentally harmful, operators are to test the pilot at least twice and make sure it activates consistently at the set pressure.

The third and fourth steps help operators discover design and installation flaws that a single set pressure test might not reveal. In the third step, operators are to make sure the set pressure is consistent with the design and configuration of the pilot and in-line valve. In this step, they also make sure the set pressure is consistent with use of the relief valve for primary overpressure protection or for backup protection. The fourth step advises operators to test the pilot at least twice and make sure it activates consistently at the set pressure. Both steps apply during installation testing and annual testing.

The fifth step will help operators find maintenance errors that could affect valve reliability. During annual testing, operators are to review the valve installation to see if it has changed since the last inspection. If it has changed, operators are to make sure the pilot sensor and inlet and vent piping are consistent with the intended design.

Finally, the sixth step supports accountability and enables trend analyses. This step advises operators to document the other steps. It also advises them to sign, date, and keep all documentation for the life of the valve.

During development of the Advisory Bulletin, we sought the opinion of our pipeline safety advisory committees and the American Petroleum Institute. We believe the information they gave us helped make the Advisory Bulletin's guidance useful and meet the objectives of Recommendation P-02-04. By following the guidance, operators can prevent repetition of events that caused the valve failure in the Bellingham accident.

Sincerely,



Stacey L. Gerard  
Acting Assistant Administrator/  
Chief Safety Officer

Enclosure

cc: Robert Chipkevich, NTSB  
Rod Dyck, NTSB  
Robert Trainor, NTSB

or optometrist's report to the medical examiner at the time of the annual medical examination; and (3) that each individual provide a copy of the annual medical certification to the employer for retention in the driver's qualification file, or keep a copy in his/her driver's qualification file if he/she is self-employed. The driver must also have a copy of the certification when driving, for presentation to a duly authorized Federal, State, or local enforcement official.

#### Discussion of Comments

The FMCSA received two comments in this proceeding. The comments were considered and are discussed below.

Ms. Barb Sachau believes that vision exemptions are granted based on outdated research information from 1920 and 1952, therefore, compromising public safety on the highways. Also, she believes that medical examination information should not be accepted unless it is dated in the year the exemption is granted.

In regard to the first issue, the discussion above under the heading, "Basis for Exemption Determination," refers to research information completed in 1920 as the "first major research" and the study completed in 1952 as one of multiple "subsequent studies." The references show that the correlation between past and future driving performance has stood the test of time. We cite more recent research from 1964 and 1971, as well as the agency's vision waiver study program of the early 1990s. (See 61 FR 13338, 13345, March 26, 1996.) In addition, the agency assembled a panel of physicians expert in diagnosing and treating vision problems and utilized data from the previous vision waiver program (early 1990s) to provide a scientific basis for the current Federal vision exemption program.

In regard to the second issue, each applicant has been examined within one year of receiving the exemption by an ophthalmologist or optometrist who certifies the driver's vision has been stable for at least 3 years preceding the date of application. The FMCSA requires each driver upon receiving an exemption to be physically examined by an ophthalmologist or optometrist who attests that the vision in the better eye continues to meet the standard in 49 CFR 391.41(b)(10), and provide a copy of the ophthalmologist's or optometrist's report to a medical examiner who conducts a medical examination and certifies the driver under 49 CFR 391.43. Thereafter, each exempted driver must have an eye examination and be certified annually. Because each

applicant has had stable vision for at least 3 years, and each applicant will undergo an eye examination upon receipt of the exemption, and yearly after receipt of the exemption, the FMCSA considers an exam performed within the last year to be consistent with the requirements of the vision program. In addition, it is consistent with the screening criteria of the vision waiver study program of the early 1990s. Those monocular drivers who participated in that program demonstrated a greater level of safety than that of all CMV drivers collectively.

Advocates for Highway and Auto Safety (Advocates) expresses continued opposition to the FMCSA's policy to grant exemptions from the FMCSRs, including the driver qualification standards. Specifically, Advocates: (1) Objects to the manner in which the FMCSA presents driver information to the public and makes safety determinations; (2) objects to the agency's reliance on conclusions drawn from the vision waiver program; (3) claims the agency has misinterpreted statutory language on the granting of exemptions (49 U.S.C. 31315 and 31136(e)); and finally (4) suggests that a 1999 Supreme Court decision affects the legal validity of vision exemptions. The issues raised by Advocates were addressed at length in 70 FR 16887 (April 1, 2005). We will not address these points again here, but refer interested parties to those earlier discussions.

#### Conclusion

Based upon its evaluation of the 24 exemption applications, the FMCSA exempts Linda L. Billings, George L. Cannon, Anthony Giancone, Jr., Andrew B. Clayton, Kenneth D. Daniels, Jerry A. Davidson, Richard D. Espey, Jr., Allen R. Fasen, Tommy K. Floyd, Franklin G. Hermann, William W. Hodgins, Hazel L. Hopkins, Jr., Donald M. Jensen, Dean A. Maystead, Jason L. McBride, Sr., Willie J. Morgan, Carl V. Murphy, Jr., Donald L. Murphy, Mark D. Page, Larry D. Reynolds, Thomas D. Reynolds, Walter J. Savage, Jr., Thomas J. Sweeny, Jr., and Louis E. Villa, Jr. from the vision requirement in 49 CFR 391.41(b)(10), subject to the requirements cited above (49 CFR 391.64(b)).

In accordance with 49 U.S.C. 31315 and 31136(e), each exemption will be valid for 2 years unless revoked earlier by the FMCSA. The exemption will be revoked if: (1) The person fails to comply with the terms and conditions of the exemption; (2) the exemption has resulted in a lower level of safety than was maintained before it was granted; or

(3) continuation of the exemption would not be consistent with the goals and objectives of 49 U.S.C. 31315 and 31136. If the exemption is still effective at the end of the 2-year period, the person may apply to the FMCSA for a renewal under procedures in effect at that time.

Issued on: August 4, 2005.

**Pamela M. Pelcovits,**  
*Director, Office of Policy, Plans, and Regulations.*

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## DEPARTMENT OF TRANSPORTATION

### Pipeline and Hazardous Materials Safety Administration

#### Pipeline Safety Advisory Bulletin; Inspecting and Testing Pilot-Operated Pressure Relief Valves

**AGENCY:** Office of Pipeline Safety (OPS), Pipeline and Hazardous Materials Safety Administration, DOT

**ACTION:** Notice of advisory bulletin.

**SUMMARY:** This notice announces a pipeline safety advisory bulletin about pilot-operated pressure relief valves installed in hazardous liquid pipelines. The bulletin provides pipeline operators guidance on whether their inspection and test procedures are adequate to determine if these valves function properly. Malfunctioning of a pilot-operated pressure relief valve was a contributing factor in an accident involving a petroleum products pipeline in Bellingham Washington.

**FOR FURTHER INFORMATION CONTACT:** L.M. Furrow by phone at 202-366-4559, by fax at 202-366-4566, by mail at U.S. Department of Transportation, 400 Seventh Street, SW., Washington, DC, 20590, or by e-mail at [buck.furrow@dot.gov](mailto:buck.furrow@dot.gov).

**SUPPLEMENTARY INFORMATION:** After its investigation of an accident involving a 16-inch petroleum products pipeline operated by the Olympic Pipe Line Company in Bellingham, Washington, the National Transportation Safety Board (NTSB) made the following recommendation to the Research and Special Programs Administration:<sup>1</sup>

Develop and issue guidance to pipeline operators on specific testing

<sup>1</sup> The Norman Y. Mineta Research and Special Programs Improvement Act (Pub. L. 108-426, 118; November 30, 2004) reorganized the Research and Special Programs Administration (RSPA) into two new DOT administrations: the Pipeline and Hazardous Material Safety Administration (PHMSA) and the Research and Innovative Technology Administration. RSPA's regulatory authority over pipeline and hazardous materials safety was transferred to PHMSA.

procedures that can (1) be used to approximate actual operations during the commissioning of a new pumping station or the installation of a new relief valve, and (2) be used to determine, during annual tests, whether a relief valve is functioning properly. (P-02-4)

The recommendation arose from NTSB's evaluation of a test Olympic had done to check the pilot of a pilot-operated pressure relief valve in a pumping station at its new Bayview products terminal. NTSB found the test was inadequate to determine if the pilot was configured properly or if it was operating reliably. Furthermore, NTSB concluded that the DOT regulations governing the testing of relief valves and other safety devices on hazardous liquid pipelines provide insufficient guidance to ensure that test protocols and procedures will effectively indicate malfunctions of pressure relief valves or their pilot controls.<sup>2</sup>

According to NTSB's accident report<sup>3</sup>—available online at [http://www.nts.gov/Publictn/P\\_Acc.htm](http://www.nts.gov/Publictn/P_Acc.htm)—Olympic installed pressure control devices to protect the Bayview terminal piping and components from overpressure by the 16-inch pipeline. These devices consisted of (1) a control valve to throttle back the inflow of product; (2) a downstream pilot-operated pressure relief valve designed to divert excess product if a set pressure was exceeded; and (3) upstream remotely controlled block valves that would stop the inflow if a pressure of 700 psig was reached inside the terminal.

The report explains that the pilot of the relief valve had been configured for low-pressure operation, with a set point of 100 psig. Consequently, during start-up of the Bayview terminal, the relief valve opened at a pressure lower than intended. To correct the problem, Olympic replaced the pilot spring (with an identical spring) and increased the set point to 700 psig. (Olympic did not consult the valve manufacturer's specifications and was unaware that a different piston, cover, and O-ring were necessary for high-pressure

configuration.) The pilot was then tested in situ with a hydraulic pump rig to be sure the pilot valve opened at the correct pressure. Olympic used the same test procedure it used to test relief valves under DOT's regulations.

The accident investigation disclosed that increasing the set pressure of the pilot had compressed the pilot spring so much that rising inlet pressure could not lift the piston, making operation of the pilot completely unreliable. Although the pilot set point apparently had been tested, the test procedure did not reveal that the pilot had been configured for low-pressure operation and thus would not consistently open at the intended pressure. NTSB observed that if the relief valve did not open because of pilot malfunction and downstream pressure rose above 700 psig, a block valve would close and increase pressure in the 16-inch pipeline, which is what happened in the accident.

#### Advisory Bulletin (ADB-05-05)

OPS shares NTSB's concern that pipeline operators could be conducting in-service tests that do not identify unreliable pilot-operated pressure relief valves. Therefore, we are issuing the following advisory bulletin:

*To:* Operators of hazardous liquid pipelines regulated by 49 CFR part 195.

*Subject:* Inspecting and testing pilot-operated pressure relief valves.

*Purpose:* To assure that pilot-operated pressure relief valves function properly.

*Advisory:* Operators should review their in-service inspection and test procedures used on new, replaced, or relocated pilot-operated pressure relief valves and during the periodic inspection and testing of these valves. Operators can use the guidance stated below to ensure the procedures approximate actual operations and are adequate to determine if the valves function properly.

*Guidance:* The procedures should provide for the following:

(a) During installation, review the valve purchase order (or comparable documentation), valve name-plate, and manufacturer's specifications. Verify that the valve is:

- (1) Compatible with the material and maximum operating pressure of the pipeline;
- (2) Compatible with or protected from environmental attack or damage;
- (3) Compatible with the hazardous liquid transported at all anticipated operating temperatures and pressures;
- (4) In conformity with the manufacturer's specifications for the valve model and type of service, and

with the purchase order (or comparable documentation);

(5) Configured according to the manufacturer's specifications for the pilot and in-line valves; and

(6) Operable at the set pressure (*i.e.*, activation of the pilot valve opens the in-line valve).

(b) If the pilot assembly of a previously installed valve is reconfigured or repaired "

(1) Do the work according to the manufacturer's specifications;

(2) Test the valve to ensure it is operable at the set pressure (*i.e.*, activation of the pilot valve opens the in-line valve) or, if testing the in-line valve would be unsafe or environmentally hazardous, tests the pilot valve according to paragraph (d) below; and

(3) Document the work.

(c) Verify that the valve set pressure is consistent with "

(1) The design or configuration of the pilot valve and in-line valve; and

(2) Use of the valve as a primary overpressure protection device or as a backup safety relief device.

(d) Test the pilot valve at least twice and verify that it activates consistently at the intended set pressure.

(e) During periodic inspections and tests, review the valve installation to determine if it has been modified since the last inspection. If so, verify that the pilot sensor and valve inlet and discharge piping are properly sized and placed and that the installation is consistent with the intended design.

(f) Document all verifications, and sign, date, and keep for the operating life of the valve all documentation.

Issued in Washington, DC, on August 4, 2005.

Stacey Gerard,

Associate Administrator for Pipeline Safety.

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## DEPARTMENT OF TRANSPORTATION

### Pipeline and Hazardous Materials Safety Administration

[Docket No. PHMSA-05-21314; Notice 1]

#### Pipeline Safety: Petition for Waiver; BOC Gases

**AGENCY:** Office of Pipeline Safety (OPS), Pipeline and Hazardous Materials Safety Administration (PHMSA), U.S. Department of Transportation (DOT).

**ACTION:** Notice; Petition for Waiver; Correction.

**SUMMARY:** PHMSA is correcting a petition for waiver published in the

<sup>2</sup> Under 49 CFR 195.262(c), the safety devices in each new pumping station must be tested under conditions approximating actual operations and found to function properly before the pumping station may be used. Also, under 49 CFR 195.428, each pressure limiting device, relief valve, pressure regulator, or other item of pressure control equipment must be inspected and tested annually to determine that it is functioning properly, is in good mechanical condition, and is adequate from the standpoint of capacity and reliability of operation for the service in which it is used.

<sup>3</sup> *Pipeline Rupture and Subsequent Fire in Bellingham, Washington, June 10, 1999*, Pipeline Accident Report NTSB/PAR-02/02, October 11, 2002.