



DEPARTMENT OF TRANSPORTATION
HAZARDOUS MATERIALS REGULATIONS BOARD
WASHINGTON, D.C. 20590

[49 CFR Part 195]

[Notice 69-27; Docket No. HM-6]

TRANSPORTATION OF LIQUIDS BY
PIPELINE

Notice of Public Hearing

On July 12, 1968, the Hazardous Materials Regulations Board issued a notice of proposed rule making (Notice No. 68-4; 33 F.R. 10213, published July 17, 1968) setting forth a complete revision of Part 180 of the Hazardous Materials Regulations of the Department of Transportation. This notice contained proposed requirements for the design, construction, testing, operation, and maintenance of pipelines carrying certain materials in liquid form. A final regulation based on this proposal has been issued and is published elsewhere in this issue of the FEDERAL REGISTER (see p. 15473). However, as noted in the preamble to that regulation, it appears that further public comment on the proposals contained in that notice would be helpful in resolving certain questions that have been raised. These proposals therefore have not been included in the final rule. To further assist it in resolving these questions, the Board will conduct a public hearing at 10 o'clock on November 18, 1969, in the Department of Transportation Building (Federal Office Building 10A), 800 Independence Avenue SW., Washington, D.C.

The proposals that have not been acted upon, and therefore retain their status as proposed regulations, are (1) the definitions of "internal design pressure" and "maximum operating pressure"; (2) proposed § 180.108, *Internal pressure design: Minimum wall thickness*; (3) proposed § 180.406, *Limit on operating pressure*; and (4) Subpart E—*Hydrostatic testing*. The Board is primarily interested in additional public comment on the questions of how to establish limitations on operating pressures and the manner in which required testing pressures and procedures should relate to those limitations. These two broad questions can be broken down into a number of more specific questions in several related areas.

Minimum wall thickness. Before 1959, the pressure design formula in the ASA B31 codes used an 85 percent stress factor and provided for a "minimum wall thickness". Since that time, the formula has used a 72 percent stress factor in the formula to provide "nominal wall thickness". The notice proposed to return to a computation of "minimum wall thickness" but did not adjust the stress factor to compensate for this fact. Therefore, considering present minus wall tolerances in nominal wall thickness, the proposed pressure design formula could require up to a 12½ percent reduction in design pressure or an equivalent increase in nominal wall thickness. The questions are then: (1) Should the "minimum wall thickness" formula be adopted as proposed? or (2) should

"minimum wall thickness" formula be adopted but with an adjusted stress factor to compensate for the change from "nominal" to "minimum" (83 percent would compensate for all minus wall tolerances in present-day pipe specifications)? or (3) should the formula be a nominal wall thickness formula as it is generally used today?

Surge pressure. The notice proposed to establish as the maximum allowable pressure (internal design pressure), a pressure that produced a stress level of 72 percent of specified minimum yield strength. This maximum pressure included pressures that resulted from surge in the line. This proposed maximum was objected to by most commenters on the ground that no reasons were given for changing the present industry standard which permits an increase of pressure due to surges of up to 10 percent in excess of the pressure which produces a 72 percent stress level. If a pressure resulting in a 72 percent stress level is the maximum safe steady state operating pressure, what are the safety factors involved that permit surge pressures to exceed this by as much as 10 percent? Are surge pressures less likely to damage or rupture the line than a steady state pressure? Or is it the infrequency of surge pressures that lowers the probability of causing an accident? Or are the economic costs and lack of technical capability to limit surge pressures, or both, the major considerations in allowing these different limitations on surge and steady state pressures? Should the steady state operating pressure be allowed to produce 72 percent stress levels with surge pressures in excess of that limit? Or does a surge to a stress level of 79.2 percent in a "thin pipe", i.e., pipe that has an actual wall thickness that is only 87.5 percent of the listed nominal wall thickness, when considered in conjunction with possible corrosion and external stress on the pipe, allow too little margin for safety? If surge pressure exceeding the 72 percent stress level is permitted, what is the industry's technical capability for controlling surge pressure? Can the latest devices and procedures limit surge pressures to 7 percent? To 5 percent? To 3 percent?

Cost-benefit. What would be the cost of installing necessary equipment to limit surge pressures, on new lines and on existing lines, to control all surges at a maximum of 7 percent of maximum operating pressure? At 5 percent of MOP? At 3 percent of MOP? If the technical capability does not exist, or would be prohibitively expensive, what would be the cost in loss of throughput, on new lines and on existing lines, of limiting surge pressure of 7 percent of maximum operating pressure (MOP equals 72 percent stress level)? To 5 percent of MOP? To 3 percent of MOP?

Maximum operating pressure/test pressure. As indicated with respect to the questions on minimum wall thickness and surge pressure, the Board would like to have additional comment on whether the MOP should be set somewhere below the 72 percent stress level to compensate for these factors or whether a 72 percent

stress level is low enough to provide an adequate margin of safety. In addition to these factors, a very significant consideration is the relationship between the maximum operating pressure and the pressure at which the pipeline has been hydrostatically tested and, further, the relationship between these two pressures and the yield strength of the pipe. The notice proposed a test pressure of 140 percent of maximum operating pressure, as set by the carrier. If MOP were set at a 72 percent stress level, under this proposal the test pressure would result in a stress level of approximately 100 percent of the specified minimum yield strength. Does the 40 percent above MOP require an unnecessarily high test pressure or would 25 percent be adequate? What percentage is necessary if surge pressure and minus wall tolerances are not compensated for in MOP? For example, as indicated above, the present industry practice is that (1) "t" in the design formula is "nominal" wall thickness, (2) maximum allowable pressure, including surge, is that pressure which produces a stress of 79.2 percent of specified minimum yield strength, and (3) the normal hydrostatic test pressure is that pressure which produces a stress of 90 percent of specified minimum yield strength. Therefore, it is possible that there will be a margin of only about 11 percent between the maximum allowable pressure with surge and the test pressure, even though the wall thickness of the pipe may be as much as 12½ percent less than the "nominal" wall thickness stated. Is this margin adequate to cover contingencies such as corrosion, external loads, and other normally anticipated factors that can affect the strength of a pipeline?

Another question that should be addressed is whether there should be a minimum test pressure specified that does not relate to the "maximum operating pressure" chosen by the operator. That is, in order to test a new pipeline for construction defects, should the line be tested to a fixed percentage of yield

without regard to the pressure that the line will be operating under?

Testing to yield strength. Since the proposed regulations, under some circumstances, could have required testing to 100 percent of yield strength, a number of comments were received on this subject. The comments indicated that there is considerable disagreement within the industry as to whether this is a desirable practice. The Board would appreciate further discussion of the pros and cons of testing pipelines to either 100 percent or greater of specified minimum yield strength.

General comment. The above questions indicate the areas in which the Board is primarily interested in receiving additional information. Since the proposed rules that have been withheld are still proposals, commentators are not limited to the specific questions raised. Should there be any other aspect of testing or operating limitations that a person is interested in, he should feel free to express an opinion at the hearing. However, the Board requests that the primary attention be focused on the questions discussed above. In this regard, please note that proposed Subpart G—Qualification and Requalification of Pipelines, has been withdrawn. If the Board decides at some time in the future to establish regulations in this area, they will be formally proposed in another rulemaking proceeding. Since this would afford adequate opportunity to comment at that time, comments should not be addressed specifically to these provisions at the hearing. One additional question relates to the effective date of the amendments that result from this hearing. Assuming for the purpose of this question that the more stringent requirements are adopted, how long should the effective date be postponed to allow adequate lead time for designing and ordering materials for a pipeline system?

The hearing will be an informal one conducted by the Board. It will not be a judicial or evidentiary type of hearing.

There will be no cross-examination of persons presenting statements. A staff member of the Office of Hazardous Materials will make an opening statement outlining the problem. Interested persons will then have an opportunity to present their initial oral statements. Statements should focus on the issues raised by this notice and the notice published in the July 17, 1968, FEDERAL REGISTER. After all initial statements have been completed, those persons who wish to make rebuttal statements will be given the opportunity to do so in the same order in which they made their initial statements. Additional procedures for the conduct of the hearing will be announced at the hearing.

Interested persons are invited to attend the hearing and present oral or written statements on the matters set for hearing. These statements will be made a part of the record of the hearing, the transcript of which will be a matter of public record. Any person who wishes to make oral statements at the hearing should notify the Secretary of the Hazardous Materials Regulations Board by November 12, 1969, stating the amount of time required for his initial statement.

All communications concerning this hearing should be addressed to the Secretary, Hazardous Materials Regulations Board, Department of Transportation, 400 Sixth Street SW., Washington, D.C. 20590.

This notice is issued under the authority of sections 831-835 of title 18, United States Code, and 6 (e) (4) and (f) (3) (A) of the Department of Transportation Act (49 U.S.C. 1655 (e) (4) and (f) (3) (A) and § 1.4(d) (6) of the Regulations of the Office of the Secretary of Transportation.

Issued in Washington, D.C., on September 29, 1969.

R. N. WHITMAN,
Administrator,
Federal Railroad Administration.

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