

February 22, 1978

Mr. Billy M. Hazlegrove
Design Engineer
Marine Technology Development
Brown & Root, Inc.
P.O. Box 3
Houston, Texas 77001

Dear Mr. Hazlegrove:

We are responding to your letter of January 30, 1978, regarding the test pressure required for a gas "pipeline and riser assembly" installed at an offshore platform.

As you point out, Section 192.619(a) (2) (ii) would necessitate a higher test pressure for the riser portion of the assembly if a single maximum allowable operating pressure (MAOP) is to be established. It would be incorrect, therefore, to test the whole assembly only to 1.25 times the proposed MAOP.

You indicate that it may be possible to conduct a preinstallation strength test on the riser portion of the assembly so that the pipeline portion would not have to be designed to withstand a higher test pressure. If so, depending on the factual circumstances involved, such a test may be permissible under the provision of Section 192.505(e).

Sincerely,

Cesar DeLeon
Acting Director
Office of Pipeline
Safety Operations

January 30, 1978
Letter No.: B/1259
File No.: 4377.58

Director
Office of Pipeline Safety Operations
Department of Transportation
2100 Second Street, S.W.
Washington, D.C. 20590

Dear Sir:

I am presently employed in the engineering design of offshore pipelines and risers by the Marine Technology Development Department of Brown & Root, Inc. Since a large part of our work deals with projects in the Gulf of Mexico, we have occasions to make use of the U.S. Department of Transportation Pipe Line Safety Standards. A recent amendment to that code initiated this inquiry.

The area of question concerns the maximum allowable operating pressure in §192.619, paragraph (a) (2) (ii). According to the footnote given the requirements for this subsection were revised by Amendment 192-27, August 16, 1976, effective August 1, 1977. As shown in the text the revision concerns the factors used to divide into the test pressure to obtain the maximum allowable operating pressure. Paraphrasing the revision it states that for offshore segments installed after July 31, 1977 that are not located on a platform, the factor is 1.25 and for segments installed that are located on an offshore platform, including a pipe riser, the factor is 1.5.

The problem arises when we have a newly installed pipeline and riser assembly going to an existing platform. Normally the pipeline and riser wall thicknesses are designed based on a maximum operating pressure or some similar design pressure. Then the test pressure is calculated by multiplying the design pressure by the factor called for in the code. Since the factor for the riser is 1.5 and the factor for the pipeline is 1.25, the question becomes which test pressure to use. If the riser test pressure is used one has the choice of possibly overstressing the pipeline or redesigning the pipeline wall thickness to handle the higher riser test pressure. If the pipeline test pressure is used the riser is not tested to code requirements.

This is only a problem because we have no way to test the riser and the pipeline at different pressures in the field. Therefore is it correct to assume that the riser factor of 1.5 is only to be used for the pre-installed conditions? If the riser is not tested before being installed on an existing platform the test pressure is assumed to be calculated by using a factor of 1.25. - 2 -

Thus the pipeline and riser will have the same test pressure and the riser wall thickness will have been designed to withstand only this maximum test pressure.

Consequently, we need a clarification of what appears to be an apparent conflicting code requirement.

Your prompt consideration is greatly appreciated.

Yours very truly,

Billy M. Hazlegrove
Design Engineer
Marine Technology Development