

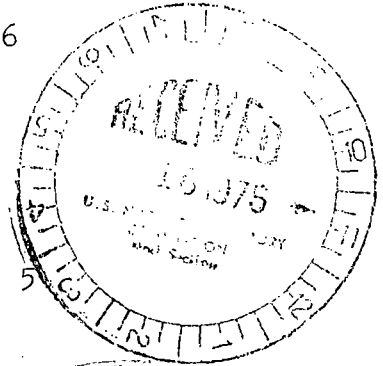


Public Service Electric and Gas Company 80 Park Place Newark, N.J. 07101 Phone 201/622-7000

March 11, 1976

United States Nuclear Regulatory  
Commission  
Washington, D. C. 20555

Attention: Mr. D. B. Vassallo, Chief  
Light Water Reactors Branch No. 5



Gentlemen:

NRC LETTER OF FEBRUARY 3, 1976  
DOCKET NOS. 50-272 AND 50-311

*Revised - Project File*

As noted in your letter requesting additional information, the major changes in requirements involve radiographic inspection technique. The original edition of B31.7 was deficient in this area as evidenced by the need for ANSI B31 Code Case 72. (Copy attached) The ANSI committee recognized that the radiographic requirements of B31.7 were not suitable for field radiography of thin wall and small diameter piping butt welds. The incorporation of Code Case 72 without change into the 1971 edition of Section III ASME Boiler and Pressure Vessel Code and its retention up to the present edition demonstrates that it provides a realistic approach to field radiography.

The requirements of Code Case 72 were incorporated into our radiographic technique in 1971. Virtually, all of the field butt welds were radiographed with this technique. This would include all nuclear classes.

In addition, radiographs of Nuclear Class III cement lined pipe were difficult to interpret. The 1970 addenda to B31.7 allowed 100% magnetic particle inspection in lieu of random radiography. This provision was also incorporated into Section III 1971 Edition. The service water system has Nuclear Class III cement lined pipe that utilized this alternate inspection method.

Our use of a later code was restricted to inspection and did not involve requirements from Section III such as materials, stress calculations, etc. that could modify our original design. Consequently, other requirements from a later Code would not be applicable. Therefore, we believe that the integrity of our field welds has not been compromised and that we have complied with our FSAR commitment to use ANSI B31.7 wherever possible.

Very truly yours,

*R. L. Mittl*

R. L. Mittl  
General Manager - Projects  
Engineering and Construction  
Department

JER,RHD:pac  
The Energy People

2723

## INTERPRETATIONS OF CODE FOR PRESSURE PIPING

### Case 72 (Reopened)—Radiography of Piping

*Inquiry:* In view of the special problems involved in the radiography of welds in pipe and other similar configurations what additional requirements or modifications to the requirements of ANSI B31.7-1969, Nuclear Power Piping, Appendix B-1 may be used?

*Reply:* It is the opinion of the Committee for B31.7 Nuclear Power Piping, that under the circumstances indicated below, the following modifications of the requirements of B31.7 Appendix B-1 may be used as alternatives in the radiography of circumferential butt welds in items such as pipe, tubing, fittings, and nozzles.

1 Except as permitted in Par. 3 below and in Table I, radiographic examination of circumferential butt welds shall be performed with single wall viewing only. The radiation may pass through one or both walls. Where the source is located outside, a minimum of 4 exposures separated by 90 deg are required for single wall viewing.

2 Where radiation passes through one or two walls and it is impractical to place the penetrometer inside the cylinder, the penetrometer may be placed on the film side, except as required in 3 below.

3 Welds in items such as pipe, tubing, fittings and nozzles with an outside diameter of  $3\frac{1}{2}$  inches or less may be radiographed using a technique in which radiation passes through two walls and the weld in both walls is viewed for acceptance on the same film. The penetrometer shall be placed on the source side. The angle of offset of the radiation beam from the plane of the weld centerline shall be the minimum required to separate the images of the source side and film side portions of the weld so that there is no overlap of the areas to be interpreted. A minimum of two exposures taken at 90 deg to each other shall be made for each weld joint. Where the ratio of OD to ID is 3 to 1 or greater, the weld may be radiographed with the radiation beam located such that the images of both walls are superimposed, in which case at least 3 exposures shall be made at 60 deg to each other.

4 Penetrometer thickness and essential hole size requirements for the radiographic techniques described in 1, 2, and 3 above are presented in Table I.

5 Where there are direct contradictions between the requirements of Appendix B-1 and this Case, as in the penetrometer hole size selection, the alternate provisions of the Case shall apply.

ANSI B31  
CASE 72  
August 1970

## INTERPRETATIONS OF CODE FOR PRESSURE PIPING

Table I

Penetrameter Requirements for Radiography of Circumferential Butt Welds in Items Such as Pipe, Fittings, Tubing, and Nozzles

Single Wall Thickness Range (in.)	Penetrameter Designation	Penetrameter Thickness (in.)	Essential Hole Designation	Essential Hole Dia (in.)
0 to 0.375	10	0.010	4T	0.040
Over 0.375 to 0.625	12	0.012	4T	0.048
Over 0.625 to 0.875	15	0.015	4T	0.050
Over 0.875 to 1.00	17	0.017	4T	0.058
Over 1.00 to 1.50	25	0.025	2T	0.050
Over 1.50 to 2.50	30	0.030	2T	0.060
Over 2.50 to 3.00	35	0.035	2T	0.070
Over 3.00 to 4.00	40	0.040	2T	0.080
Over 4.00 to 6.00	50	0.050	2T	0.100

Reprinted from July 1970 MECHANICAL ENGINEERING  
a publication of The American Society of Mechanical En-  
gineers, United Engineering Center, 345 East 47th Street,  
New York, N. Y. 10017.