

PI-74-0136

September 20, 1974

Mr. Ronald D. Gardner
The Pipe Line Development Company
1831 Columbus Road
Cleveland, OH 44113

Dear Mr. Gardner:

This refers to your letter of August 22, 1974, asking whether circumferential fillet welds on "PLIDCO Weld+Ends" must be nondestructively tested under 49 CFR 195.234(e)(4) when the welds are used to resist longitudinal forces.

In our letter of January 24, 1972, to your company on this subject, we stated that under 49 CFR 195.234(e)(4) girth butt welds which are "tie-in" welds must be 100 percent nondestructively tested. In that letter we also stated that the fillet welds on "PLIDCO Weld+Ends" are not considered "tie-in" welds within the meaning of section 195.234(e)(4). The fact that these fillet welds may be used to resist longitudinal forces does not alter our previous opinion.

We appreciate your interest in pipeline safety.

Sincerely,
Joseph C. Caldwell
Director
Office of Pipeline Safety

August 22, 1974

Mr. Joseph C. Caldwell
Acting Director
Office of Pipeline Safety
Office of The Secretary of Transportation
Washington, D. C. 20590

Dear Mr. Caldwell:

In reference to your letter of January 24, 1972 to Mr. Edward B. Smith, you stated that the circumferential fillet welds on PLIDCO Weld+Ends are considered security welds and not subject to the requirements of Para. 195.234 of a 100% non-destructive test. The inference being that the fitting can seal and resist longitudinal forces without the benefit of welding. This is true when the coupling is operating at the unanchored pressure rating.

Where we use the coupling at elevated pressures beyond the limits of the clamping element, we must rely on the circumferential fillet welds as an anchoring means to resist longitudinal forces. Are the circumferential fillet welds still termed as "Security Welds"?

Enclosed is an example of a 10 inch PLIDCO Weld+Ends installed and welded on Schedule No. 40 pipe. Considering a one half inch fillet weld circumferentially around the pipe, each should be able to resist approximately 162,000 pounds of allowable end force. This computes to approximately 1,784 psi equivalence. Supplementing this value with the 600 psi allowable that the clamping screws will resist, totals 2,384 psi allowable pressure. The fitting has an anchored pressure rating of 1500 psi maximum.

The welding joint is a socket weld fillet. Residual stresses are greatly reduced by the generous length of the coupling and considering the angular misalignment with which it can be assembled.

Would a hydrostatic test be sufficient when:

- (1) The welding has more than adequately reinforced the clamping element?
- (2) The fit-up is simplified?

Very truly yours,
Ronald D. Gardner
Research Development Manager

January 24, 1972

Mr. Edward B. Smith
President
The Pipe Line Development Co.
1831 Columbus Road
Cleveland, Ohio 44113

Dear Mr. Smith:

This is a further acknowledgement of your letter of November 3, 1971, regarding non-destructive welding standards in the natural gas pipeline safety regulations. Our response to your specific questions is as follows:

1. Do the new standards actually say that fillet welds on tie-ins must be 100% non-destructively tested?

The intent of our regulation, Paragraph 195.234(e)(4), was to require 100% non-destructive testing of girth butt welds that were tie-in welds. The principal reason for requiring 100% non-destructive testing of these welds was the fact that such tie-in welds are comparatively more difficult to make and require special consideration in attaining proper alignment and performing a quality weld. Security fillet welds similar to those used on your weld + ends coupling are not considered as tie-in welds subject to the requirements of Paragraph 195.234(e)(4).

2. Is Plidcotesting a satisfactory non-destructive test.

The regulations do not forbid a test such as Plidcotesting. However, Plidcotesting is not a non-destructive test as the term is used in Part 195. A non-destructive test, as required by 195.234, is one which evaluates the weld without impairing the weld's usefulness.

Thank you for your interest in the pipeline safety program. If you have any additional questions, please advise.

Sincerely,
Joseph C. Caldwell
Acting Director
Office of Pipeline Safety

The Pipe Line Development Co.
1831 Columbus Road
Cleveland, Ohio 44113

November 3, 1971

Department of Transportation
Director, Office of Pipeline Safety
Washington, D.C.

Gentlemen:

We are manufacturers of a line of emergency piping repair devices. Our customers have been asking us questions about installation of our fitting in relationship to the "Minimum Federal Safety Standards for Liquid Pipelines."

The enclosed sales bulletin describes our Weld+Ends Coupling which has been used for twenty years on pipeline tie-ins and repairs. Its use and advantages are outlined in the API's "Recommended Pipe Line Maintenance Welding Practices" 1st Edition, October, 1966. (Section 2.02 - pg. 17 and Fig. 22 - pg. 41).

According to our interpretation the new minimum standards require tie-in welds to be 100% non-destructively tested to the standards of acceptability of Section 6, API Standard 1104, January 1968. (Sections 195.234-e-4 and 195.228 of the minimum standards).

As you can see our fitting requires a fillet weld instead of a butt weld. We have consulted several non-destructive testing laboratories and their opinion is that there is no satisfactory way to inspect such a fillet weld to the requirements of Section 6 of the API's 1104 Standard. The non-destructive test methods they considered were x-ray, ultrasonic, dye penetrant and magnetic particle.

The first two methods they felt would be next to impossible to interpret and the last two would only detect flaws very close to the surface.

In the past we have provided our customers with means of hydrostatically proving their welds on Weld+Ends Couplings. This means, called Plidcotesting, is described in an enclosure.

Our questions are then:

- (1) Do the new standards actually say that fillet welds on tie-ins must be 100% non-destructively tested?
- (2) Is Plidcotesting a satisfactory non-destructive test?

Very truly yours,
Edward B. Smith
President