Los Alamos NATIONAL LABORATORY EST.1943

Conduct of Engineering
Formal Clarification or Interpretation Request

Assigned by Responder: ☒ Clarification ☐ Interpretation Tracking number CIR-__23-001_____

Clarify	To make the CoE document or its references understandable and free from confusion
Interpret	To formally provide an acceptable method of compliance with the document or references

1.0 Request

Brief Title: Gauge Use for Initial Service Leak Tests of Tie-In to Existing (Legacy) B31.3 and B31.9 Piping

Affected Document Title, Number, and Rev. No.

Engineering Standards Manual (ESM), STD-342-100 Chapter 17, *Pressure Safety*, Section *EXIST* Rev. 2 05/25/17

Inquiry (describe ambiguity or issue)

When executing the initial service leak test of a pressure piping system at the point of connection to the legacy system, is a pressure gauge required to verify compliance the ESM Chapter 17 testing requirements?

Section/Article/Para and Existing Wording

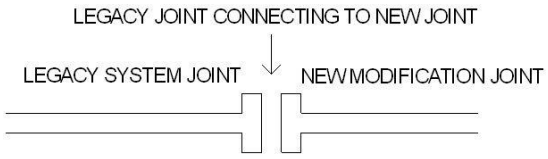
ESM Chapter 17, *Pressure Safety*, Section *EXIST*, paragraph 3.0 Modification or Maintenance of an Existing System, defines the testing required at the connection point of new or modified piping components to any existing (legacy) pressure system.

For welded, brazed, or soldered joints where elevated pressure testing may not be performed is shown as an Initial Service Leak Test to meet paragraph 3.B.1.a.3).

3.0 Modification or Maintenance of an Existing System

B. Testing of Modifications to Existing Systems

1. For existing (not only legacy as illustrated below) pressure systems that require system modifications, or any other action which requires the system to be opened and modified by installing a new joint (or removal and replacement of components for calibration purposes), the affected section of piping must be tested/examined as follows:



a. For welded connections where elevated pressure leak test is not possible:

3) Perform Initial Service Leak Test as follows:

i. Gradually increase pressure in steps until the operating pressure (pressure during normal system operating conditions) is reached, holding the pressure at each step long enough to equalize piping strains except for systems under 25 psig and with a volume of 2 cubic foot or less, pressure can be brought up in one step.

ii. Between each pressure step, examine the affected joints for indications of leaks.

Requestor (LANL employee) Shawn M. Wright	Z Number 357332	Organization PIE-4	Date 02/22/2023

2.0 Response by Safety (or Security) Management Program Owner Representative (SMPOR/POC)

This Clarification is applicable to any construction that modifies an existing pressure system.

In short, No. The procedure for executing the initial service testing defined in EXIST paragraph 3.B.1.a.3) does not require any instrumentation. The procedure shall include steps as necessary to "Gradually increase pressure in steps until the operating pressure (pressure during normal system operating conditions) is reached" and to "examine the affected joints for indications of leaks" after "each pressure step." For pressure systems "under 25 psig and with a volume of 2 cubic foot or less," the pressure "can be brought up in one step" with examination for leakage to follow the increase.

Caveats/Basis:

It is expected that the requirements of ESM Chapter 17, *Pressure Safety* (or the Tailored Standards Manual) will be met even if project specifications do not specifically cite the requirement. As such, all construction that alters existing pressure systems shall comply with the requirements under *EXIST*, paragraph 3.B. *EXIST* article 3.0 was created to specifically address the joint(s) connecting new construction or a new modification to existing pressures systems. ASME B31.3 and ASME B31.9 piping codes only apply to new construction; LANL uses selected aspects of them for modifying an existing system.

Name Ari (Ben) Swartz	Z Number 235211	Signature/Date ARI SWARTZ (Affiliate) Digitally signed by ARI SWARTZ (Affiliate) Date: 2023.03.07 09:57:37 -07'00'

3.0 SMPO Approval (Standards Manual and code and regulation matters only, otherwise N/A)

Comments		
Name Dan Tepley	Z Number 185676	Signature/Date DANIEL TEPLEY (Affiliate) Digitally signed by DANIEL TEPLEY (Affiliate) DN: c=US, o=U.S. Government, ou=Department of Energy, 0.9.2342.19200300.100.1.1=89001000505451, cn=DANIEL TEPLEY (Affiliate) Date: 2023.03.09 08:40:58 -07'00'

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