

RECORD OF REVISIONS

Rev	Date	Description	POC	RM
0	11/09/18	Initial issue.	Ari Ben Swartz, <i>ES-EPD</i>	Larry Goen, <i>ES-DO</i>
1	09/22/23	Updated Section and Attachment name (formerly known as Section ASME – New ASME System Requirements, Attachment ASME-2) for revised ESM Ch 17 format. Content reworded.	Ari Ben Swartz, <i>ES-FE</i>	Dan Tepley, <i>ES-DO</i>

Contact the Standards point of contact (POC) for upkeep, interpretation, and variance issues.

Chapter 17	Pressure Safety POC
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This document is online at <https://engstandards.lanl.gov>

National Board Inspection Code NB-23 Application

This attachment contains code scope summaries from NB-23 with discussion of how these mandates shall be applied at LANL. It is based on the 2021 edition; later editions must be evaluated for impact.

Part 1 Installation
<p>This part provides requirements and guidance to ensure all types of pressure-retaining items are installed and function properly. Installation includes meeting specific safety criteria for construction, materials, design, supports, safety devices, operation, testing, and maintenance.</p> <p>Engineering Standards Manual (ESM) Chapter 17 requires adherence to National Board Inspection Code (NBIC) NB-23 Part 1 <i>Installation</i> for the installation of all boilers and pressure vessels.</p>
Part 2 Inspection
<p>This part provides information and guidance needed to perform and document inspections for all types of pressure-retaining items. This part includes information on personnel safety, nondestructive examination, tests, failure mechanisms, types of pressure equipment, fitness for service, risk-based assessments, and performance-based standards.</p> <p>ESM Chapter 17 requires adherence to NBIC NB-23 Part 2 <i>Inspection</i> for the in-service inspection and repair/alteration inspection of all boilers and associated pressure vessels like superheaters. PS-GEN-NBIC-FIA, QCSM, <i>Quality Control Systems Manual (Federal Inspection Agency)</i>, exists to ensure that these inspections meet the requirements of the NBIC NB-23 and Engineering Standards Manual (ESM) Ch. 17. These National Board of Boiler and Pressure Vessel Inspectors (NBBI) inspections require an NBBI Commissioned Inspector.</p>

Part 3 Repairs and Alterations

This part provides requirements and guidance to perform, verify, and document acceptable repairs or alterations to pressure retaining items regardless of code of construction. Alternative methods for examination, testing, heat treatment, etc. are provided when the original code of construction requirements cannot be met. Specific acceptable and proven repair methods are also provided.

ESM Ch. 17 requires adherence to NBIC NB-23 Part 3 *Repairs and Alterations* for repairs or alterations to American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (BPVC) Section I and Section IV boilers, and Section VIII Div. 1 pressure vessels. [PS-GEN-NBIC-RSP](#), QCSM, *Quality Control Systems Manual (R Stamp Program)*, exists to ensure that these repairs or alterations meet the requirements of the NBIC NB-23, original code of construction, and ESM Chapter 17.

The repair and alteration portion of the API 510 is not used; all pressure vessel repairs/alterations shall follow PS-GEN-NBIC-RSP.

Part 4 Pressure Relief Devices

This part provides information and guidance to ensure pressure relief devices are installed properly, information and guidance needed to perform and document inspections for pressure relief devices, and information and guidance to perform, verify, and document acceptable repairs to pressure relief devices.

NBIC NB-23 Part 4 *Pressure Relief Devices* has three primary sections that contain requirements:

Section 2: Installation of Pressure Relief Devices

- The requirements of this Section are integrated into ESM Chapter 17.

Section 3: In-service Inspection of Pressure Relief Devices

- Maintenance and Site Services (MSS) Operations & Maintenance Criteria (403 and 419) integrate the requirements in Section 3.

Section 4: Repair of Pressure Relief Devices

- Los Alamos National Laboratory (LANL) does not hold a "VR" stamp at this time, and therefore is not authorized to repair ASME/National Board (NB) stamped relief devices. This Section will not be followed unless LANL becomes an authorized "VR" stamp holder.