

REF-1 – 10CFR851 on Pressure Safety

10CFR851.3 Definitions

Pressure systems means all pressure vessels, and pressure sources including cryogenics, pneumatic, hydraulic, and vacuum. Vacuum systems should be considered pressure systems due to their potential for catastrophic failure due to backfill pressurization. Associated hardware (e.g., gauges and regulators), fittings, piping, pumps, and pressure relief devices are also integral parts of the pressure system.

10CFR851, Appendix A, Part 4, Pressure Safety

- (a) Contractors must establish safety policies and procedures to ensure that pressure systems are designed, fabricated, tested, inspected, maintained, repaired, and operated by trained and qualified personnel in accordance with applicable and sound engineering principles.
- (b) Contractors must ensure that all pressure vessels, boilers, air receivers, and supporting piping systems conform to:
 - (1) The applicable American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (2004); sections I through section XII including applicable Code Cases (incorporated by reference, see § 851.27)
 - (2) The applicable ASME B31 (Code for Pressure Piping) standards as indicated below; and or as indicated in paragraph (b)(3) of this section:
 - (i) B31.1—2001—Power Piping, and B31.1a—2002—Addenda to ASME B31.1—2001 (incorporated by reference, see § 851.27);
 - (ii) B31.2—1968—Fuel Gas Piping (incorporated by reference, see § 851.27);
 - (iii) B31.3—2002—Process Piping (incorporated by reference, see § 851.27);
 - (iv) B31.4—2002—Pipeline Transportation Systems for Liquid Hydrocarbons and Other Liquids (incorporated by reference, see § 851.27);

- (v) B31.5—2001—Refrigeration Piping and Heat Transfer Components, and B31.5a—2004, Addenda to ASME B31.5—2001 (incorporated by reference, see § 851.27);
- (vi) B31.8—2003—Gas Transmission and Distribution Piping Systems (incorporated by reference, see § 851.27);
- (vii) B31.8S—2001—Managing System Integrity of Gas Pipelines (incorporated by reference, see § 851.27);
- (viii) B31.9—1996—Building Services Piping (incorporated by reference, see § 851.27);
- (ix) B31.11—2002—Slurry Transportation Piping Systems (incorporated by reference, see § 851.27); and
- (x) B31G—1991—Manual for Determining Remaining Strength of Corroded Pipelines (incorporated by reference, see § 851.27).

(3) The strictest applicable state and local codes.

- (c) When national consensus codes are not applicable (because of pressure range, vessel geometry, use of special materials, etc.), contractors must implement measures to provide equivalent protection and ensure a level of safety greater than or equal to the level of protection afforded by the ASME or applicable state or local code. Measures must include the following:
 - (1) Design drawings, sketches, and calculations must be reviewed and approved by a qualified independent design professional (i.e., professional engineer). Documented organizational peer review is acceptable.
 - (2) Qualified personnel must be used to perform examinations and inspections of materials, in-process fabrications, nondestructive tests, and acceptance test.
 - (3) Documentation, traceability, and accountability must be maintained for each pressure vessel or system, including descriptions of design, pressure conditions, testing, inspection, operation, repair, and maintenance.