

ESM Chapter 17

Pressure Safety

Revision 3 Highlights

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■ Section 3 – Qualification Requirements

- Incorporates education and experience requirements from ASME code for qualification of Pressure System Designers and Owner's Inspectors
- Incorporates reference to Engineering Training & Qualification Manual for Pressure Safety Officer Qualification requirements

■ Section 5 – Definitions and Acronyms

- Added definitions for: CMMS, corrosive service, damage ratio, Dewar, PSO (replaced FOD PSO), in service leak test, leak test, major system modification, piping components, reversal ratio, volumetric weld examination
- Clarified definitions for: components, CPSO, deputy CPSO, sub-components, system owner

■ Section 6 – General Program Statements

- Clarified that systems in preliminary design as of March 10, 2009 (issue date of Revision 0 of Chapter 17) are considered new systems (cannot take advantage of rules for legacy systems)

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■ Section 6 – General Program Statements

- Incorporates requirements for phased implementation for legacy systems (aligns with Revision 1 of PMP):
 - FY10 – walkdowns of high-risk systems; relief valve calculations; MEL uploads
 - FY11 – MWO development; PM activation; certification for high-risk systems
 - FY11 – walkdowns of low-risk systems; relief valve calculations; MEL uploads
 - FY12 – MWO development; PM activation; certification for low-risk systems
- Adds an annual program assessment by the CPSO

■ Section 7 – Excluded Pressure Vessels, Relief Devices and Systems

- Clarifies that pressure systems that cannot be designed in accordance with ASME codes must have blast containment shielding to protect the workers
- Clarifies that vacuum systems that can be pressurized to greater than 15 psig are included in the scope of the program

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- **Section 9 – Pressure System Certification Process**
 - Update process flow chart (including clarification that alternate methods and variances requirement CPSO and Site Chief Engineer approval)
 - Replaces periodic recertifications (e.g. annual recertification of programmatic systems) with recertification after a major modification
 - Emphasizes application of configuration management to update of documentation packages
- **Section 10 – Pressure System Deficiency Disposition Requirements for Legacy Systems (see backup slides for section content)**
 - Provides additional deficiency examples in risk level bins
 - Identifies specific grace periods for each example deficiency within the risk level bins, and increases length of grace period for some example deficiencies
 - Provides code weld examination requirements for ASME B31.1 and B31.9, in addition to B31.3

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- **Section 10 – Pressure System Deficiency Disposition Requirements for Legacy Systems**
 - Introduces risk-based evaluation methodology as option to default actions in addressing certain types of deficiencies
 - Based on API recommended practice 580, Risk-Based Inspection
 - Not applicable to Risk Level 1 deficiencies
 - Not applicable to known hardware deficiencies
 - Evaluations must be prepared by a qualified engineer and approved by a qualified pressure safety officer
 - Identifies generic risk-based evaluations that have been prepared by the pressure safety SME for some low hazard systems
 - Note clarified to indicate that:
 - LASO will be copied on all LANL approved variances associated with FS1 systems
 - LASO will be copied on all LANL approved variances associated with Safety Class or Safety Significant systems, regardless of the fluid system category
 - LASO will be notified of any deficiencies discovered in Safety Class or Safety Significant systems

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- **Section 11 – Design and Documentation**
 - Clarifies ASME code applicability for instruments and requirements for establishing adequacy of instrument for system pressure
 - Includes new sub-section on material compatibility
- **Section 13 – Inspection, Testing and Maintenance**
 - Provides additional specificity for inspection and replacement intervals for rupture disks
 - Provides links to preventive maintenance instructions for relief devices
- **Section 16 – Pressure System Documentation Package Contents**
 - Includes a new table which identifies documentation package content requirements for legacy systems

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■ Section 17 – Appendices

- New appendix added which provides guidance on selection of relief devices for gas bottle systems
- New appendix added which describes the methodology for performing a risk-based evaluation of legacy pressure systems (see backup slides for tables from appendix)
- New appendix added which identifies category M fluids