



U.S. NRC

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Protecting People and the Environment

Use of Code and Standards in 10 CFR 50.55a
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Topic for Discussion

- What is Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a, “Code and standards” ?
- Why is 10 CFR 50.55a Important?
- Background
- Outline of 10 CFR 50.55a
 - Outlines are based on final rulemaking issued on November 4, 2014
 - For the first time this rulemaking provides headings and subheadings to all the paragraphs of 10 CFR 50.55a
 - Emphasis will be for operating reactors and Inservice Examination and Testing of snubbers
 - For complete details (including for new reactors) see 10 CFR 50.55a
- Information Regarding Update of 10 CFR 50.55a



Disclaimer

- This presentation was prepared by staff of the U.S. Nuclear Regulatory Commission (NRC). It may present information that does not currently represent an agreed upon NRC staff position. NRC has neither approved nor disapproved the technical content.



What is 10 CFR 50.55a ?

- NRC's Codes and standards rule
- Requires use of certain Codes/standards
- Provides NRC's requirements for using Codes and standards in Nuclear Power Plants (NPPs)
- Provides NRC's requirements for using Codes and standards for New Reactors Design and construction, which is not being discuss in this presentation.



Why is § 50.55a Important?

- Provides NRC's requirements for use of Codes during:
 - Design
 - Construction
 - Operation (inservice inspection and testing) of systems and components in NPPs
- Adopts voluntary consensus standards through *incorporation by reference* (1 CFR Part 51)
- NRC participation in American Society of Mechanical Engineers (ASME) Code activities complies with the National Technology Transfer and Advancement Act of 1995 (P.L. 104-113)



Why is § 50.55a Important?

- National Technology Transfer and Advancement Act of 1995 (P.L. 104-113) requires that if Federal agencies establish technical standards, they must use technical standards that voluntary consensus standards bodies develop or adopt unless the use of such standards is inconsistent with applicable law or is impractical.
- The American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (BPV) Section III and Section XI, Code for Operation and Maintenance of Nuclear Power Plant (OM Code), are national, voluntary consensus standards.
- NRC approves the use of editions and addenda to the Codes in 10 CFR 50.55a through the rulemaking process of “incorporation by reference.”



Background

- 10 CFR 50.55a first issued on June 12, 1971 in *Federal Register*
- ASME Boiler and Pressure Vessel (B&PV) Code (Section III and Section XI) published (currently)
 - Odd years
 - No addenda will be published
- ASME Code for Operation & Maintenance of Nuclear Power Plants (OM Code) published (currently)
 - Even years
 - No addenda will be published

Background

- 10 CFR 50.55a periodically updated to incorporate by reference the latest editions and addenda to ASME B&PV Codes (Section III and XI) and OM Code
- Institute of Electrical and Electronics Engineers (IEEE) Standards
 - IEEE Std 279 for protection systems until 1999
 - IEEE Standard 603-1991 for safety systems after 1999
- 10 CFR 50.55a is not routinely updated to incorporate by reference the latest version of IEEE Standard 603

Outline of § 50.55a, “Codes and standards”

Paragraphs of 10 CFR 50.55a:

- (a) Documents approved for incorporation by reference
[For Example written as 10 CFR 50.55a(a)]
- (b) Use and conditions on the use of Standard
- (c) Reactor coolant pressure boundary (RCPB) (Class 1 design)
- (d) Quality Group B components (Class 2 design)
- (e) Quality Group C components (Class 3 design)
- (f) Inservice testing requirements
- (g) Inservice inspection requirements



Outline of § 50.55a, “Codes and standards”

Paragraphs of 10 CFR 50.55a (cont.):

- (h) Protection and safety systems (IEEE-279 or IEEE-603)
- (i) through (y) reserved
- (z) Alternative to codes and standards requirements
 - (z)(1) Acceptable level of quality and safety
 - (z)(2) Hardship without a compensating increase in quality and safety

Outline of § 50.55a, “Codes and standards”

- Paragraphs of 10 CFR 50.55a (cont.) :
 - (a) Documents approved for incorporation by reference
 - (1) American Society of Mechanical Engineers (ASME), *Three Park Avenue, New York, NY 10016; Telephone 1-800-843-2763*
 - (i) ASME Boiler and Pressure Vessel Code, Section III
 - (ii) ASME Boiler and Pressure Vessel Code, Section XI
 - (iii) ASME Code Cases
 - (iv) ASME Operation and Maintenance Code
 - (2) Institute of Electrical and Electronic Engineers (IEEE)
 - (i) IEEE standard 279-1971 (IEEE Std. 279-1971)
 - (ii) IEEE Standard 603-1991 (IEEE Std. 603-1991)
 - (iii) IEEE Standard 603-1991, correction sheet (IEEE Std. 603-1991)

Outline of § 50.55a, “Codes and standards”

- Paragraphs of 10 CFR 50.55a (cont.):
 - (a) Documents approved for incorporation by reference (cont.)
 - (3) U. S. NRC Public Document Room, 11555 Rockville Pike, Rockville, Maryland 20852; telephone 1-800-397-4209
 - (i) NRC Regulatory Guide 1.84, Revision 36, “Design, Fabrication, and Material Code Case acceptability, ASME Section III.”
 - (ii) NRC Regulatory Guide 1.147, Revision 17, “Inservice Inspection Code Case acceptability, ASME Section Xi, Division 1.”
 - (iii) NRC Regulatory Guide 1.192, Revision 1, “Operation and Maintenance Code Case acceptability, ASME OM Code.”

Outline of § 50.55a, “Codes and standards”

- Paragraphs of 10 CFR 50.55a (cont.) :

(b) Use and conditions on the use of standards

- (1) Conditions on ASME BPV Code Section III
(Section III Condition (i) through (vii))
- (2) Conditions on ASME BPV Code Section XI
(Section XI Condition (i) through (xxix))

Outline of § 50.55a, “Codes and standards”

- Paragraphs of 10 CFR 50.55a (cont.) :

(b) Use and conditions on the use of standards

(2) Conditions on ASME BPV Code Section XI (cont.)

(2)(vii) Section XI Condition: Section XI reference to OM Part 4, OM Part 6, and OM Part 10 (Table IWA-1600-1), When using Table IWA-1600-1, “Referenced Standards and Specification,” in the Section XI, Division 1, 1987 Addenda, 1988, or 1989 Edition, the specified “Revision Date and Indicator” for ASME/ANSI OM Part 4, ASME/ANSI Part 6, and ASME/ANSI Part 10 must be OMa-1988 Addenda to the OM-1987 Edition. These requirements have been incorporated into the OM Code, which is incorporated by reference in paragraph (a)(1)(iv) of this section.

Outline of § 50.55a, “Codes and standards”

Paragraphs of 10 CFR 50.55a (cont.):

(b) Use and conditions on the use of standards (cont.)

(3) Conditions on ASME OM Code

- (i) OM Condition: Quality assurance
- (ii) OM Condition: Motor-Operated Valve (MOV) testing
- (iii) Reserved
- (iv) OM Condition: Check valves (Appendix II)
- (v) OM Condition: Snubber ISTD

Outline of § 50.55a, “Codes and standards”

Paragraphs of 10 CFR 50.55a (cont.) :

- (b) Use and conditions on the use of standards (cont.)
 - (3) Conditions on ASME OM Code (cont.)
 - (v) OM Condition: Snubber ISTD Article IWF-5000, “Inservice Inspection Requirements for Snubbers,” of the ASME BPV Code, Section XI, must be used when performing inservice inspection examinations and tests of snubbers at nuclear power plants, except as conditioned in paragraphs (b)(3)(v)(A) and (b)(3)(v)(B) of this section.

Outline of § 50.55a, “Codes and standards”

Paragraphs of 10 CFR 50.55a (cont.):

(b) Use and conditions on the use of standards (cont.)

(3) Conditions on ASME OM Code (cont.)

(v)(A) *Snubbers: First provision.* Licensees may use Subsection ISTD, “Preservice and Inservice Examination and Testing of Dynamic Restraints (Snubbers) in Light-Water Reactor Power Plants,” ASME OM Code, 1995 Edition through the latest edition and addenda incorporated by reference in paragraph (a)(1)(iv) of this section, in place of the requirements for snubbers in the editions and addenda up to the 2005 Addenda of the ASME BPV Code, Section XI, IWF–5200(a) and (b) and IWF–5300(a) and (b), by making appropriate changes to their technical specifications or licensee-controlled documents. Preservice and inservice examinations must be performed using the VT–3 visual examination method described in IWA–2213.

Outline of § 50.55a, “Codes and standards”

Paragraphs of 10 CFR 50.55a (cont.):

(b) Use and conditions on the use of standards (cont.)

(3) Conditions on ASME OM Code (cont.)

(v)(B) *Snubbers: Second provision.* Licensees shall comply with the provisions for examining and testing snubbers in Subsection ISTD of the ASME OM Code and make appropriate changes to their technical specifications or licensee-controlled documents when using the 2006 Addenda and later editions and addenda of Section XI of the ASME BPV Code.

(vi) Exercise interval for manual valves

Outline of § 50.55a, “Codes and standards”

Paragraphs of 10 CFR 50.55a (cont.) :

- (b) Use and conditions on the use of standards (cont.)
 - (4) Conditions on Design, Fabrication, and Materials Code Cases (condition (i) through (iii))
 - (5) Conditions on inservice inspection Code Cases (condition (i) through iii))

Outline of § 50.55a, “Codes and standards”

Paragraphs of 10 CFR 50.55a (cont.) :

- (b) Use and conditions on the use of standards (cont.)
- (6) Conditions on Operation and Maintenance of Nuclear Power Plants Code Cases (condition (i) through (iii))
 - (i) OM Code Case condition: Applying Code Cases
 - (ii) OM Code Case condition: Applying different revisions of Code Cases
 - (iii) OM Code Case condition: Applying annulled Code Cases



Outline of § 50.55a, “Codes and standards”

- Paragraphs of 10 CFR 50.55a (cont.) :
 - (c) Reactor coolant pressure boundary (Class 1 design)
 - (d) Quality Group B components (Class 2 design)
 - (e) Quality Group C components (Class 3 design)



Outline of § 50.55a, “Codes and standards”

- Paragraphs of 10 CFR 50.55a (cont.) :
 - (f) Inservice testing requirements: This paragraph provides the inservice testing (IST) requirement of systems and components of boiling and pressurized water-cooled nuclear power reactors specifically pumps and valves.
 - (f)(1) Inservice testing requirements for older plants (pre-1971 Construction Permits (CPs))
 - (f)(2) Design and accessibility requirements for performing IST in plants with CPs issued between 1971 and 1974
 - (f)(3) Design and accessibility requirements for performing IST in plants with CPs issued after 1974
 - (f)(4) Inservice testing standards requirements for operating plants
 - (f)(5) Requirements for updating IST programs
 - (f)(6) Actions by the Commission for evaluating impractical and augmented IST Code requirements

Outline of § 50.55a, “Codes and standards”

- Paragraphs of 10 CFR 50.55a (cont.) :
 - (g) Inservice inspection requirements: This paragraph provides the inservice inspection (ISI) requirement of systems and components of boiling and pressurized water-cooled nuclear power reactors specifically components (including supports).

(Note: Snubbers falls under supports)



Outline of § 50.55a, “Codes and standards”

- Paragraphs of 10 CFR 50.55a (cont.) :
- (g)(1) Inservice inspection requirements for older plants (pre-1971 CPs):
 - Meet the requirements of ASME Section XI to the extend practical
 - RCPB and theirs support must meet ASME Class 1 requirement
 - Other safety related component (including supports) must meet the ASME Code Class 2 and Class 3 requirements.
- (g)(2) Design and accessibility requirements for performing inservice inspection in plants with CPs issued between 1971 and 1974:
 - ASME Code Class 1 and Class 2 components (including supports) shall be designed and provided access to meet the ASME Section XI (or optional ASME Code Cases in RG 1.147) in effect 6 months prior to CP.
 - Allows use of later referenced ASME Code/Addenda *{Pl. see RIS 2004-12}*



Outline of § 50.55a, “Codes and standards”

- Paragraphs of 10 CFR 50.55a (cont.) :
 - (g)(3) Design and accessibility requirements for performing inservice inspection in plants with CPs issued after 1974
 - (i) ISI design and accessibility requirements: Class 1 components and supports.
 - (ii) ISI design and accessibility requirements: Class 2 and 3 components and supports.
 - (iii) - (iv) Reserved

Outline of § 50.55a, “Codes and standards”

- Paragraphs of 10 CFR 50.55a (cont.) :
- (g)(3) Design and accessibility requirements for performing inservice inspection in plants with CPs issued after 1974 (cont.)
 - (v) ISI design and accessibility requirements: Meeting later ISI requirements. All components (including supports) may meet the requirements set forth in subsequent editions of code and addenda or portion thereof that are incorporated by reference in paragraph (a) of this section, subject to the conditions listed therein.



Outline of § 50.55a, “Codes and standards”

- Paragraphs of 10 CFR 50.55a (cont.) :
 - (g)(4) Inservice inspection standards requirement for operating plants. Throughout the service life of a boiling or pressurized water-cooled nuclear power facility, components (including supports) that are classified as ASME Code Class 1, Class 2, Class 3 must meet the requirements of ASME BPV Code (or ASME OM Code for snubber examination and testing), that are incorporated by reference of this section.
 - (i) Applicable ISI Code: Initial 120-month interval
 - (ii) Applicable ISI Code: Successive 120-month intervals
 - (iii) Applicable ISI Code: Optional surface examination requirement.
 - (iv) Applicable ISI Code: Use of subsequent Code editions and addenda. Allows the use Code and addenda that are incorporated by reference.
 - (v) Applicable ISI Code: Metal and concrete containments.



Outline of § 50.55a, “Codes and Standards”

- Paragraphs of 10 CFR 50.55a (cont.) :
- (g)(5) Requirement for updating ISI program.
 - (i) ISI program update: Applicable ISI Code editions and addenda.
The ISI program must be revised to meet the later Code and addenda.
 - (ii) ISI program update: Conflicting ISI Code requirements with technical specifications.
If a revised ISI program conflicts with TSs, the licensees required to submit to the Commission for amendment of the TSs to conform the TSs to the revised ISI program at least 6 months before the start of the new interval.
 - (iii) ISI program update: Notification of impractical ISI Code requirements.
Impractical Code requirements shall be submitted to NRC.

Outline of § 50.55a, “Codes and standards”

- Paragraphs of 10 CFR 50.55a (cont.) :

- (g)(5) Requirement for updating ISI program (cont.).
 - (iv) ISI program update: Schedule for completing impracticality determinations.

Impractical Code requirements (determined in a subsequent interval) not included in revised ISI program shall be submitted to NRC review and approval not later than 12 months after the expiration of the initial or subsequent 120-month ISI interval.



Outline of § 50.55a, “Codes and standards”

- Paragraphs of 10 CFR 50.55a (cont.) :
 - (g)(6) Actions by the Commission for evaluating impractical and augmented ISI Code requirements.
 - (i) Impractical ISI requirements: Granting of relief.
 - (ii) Augmented ISI program.
 - (h) Protection and safety systems. (IEEE-279 or IEEE-603)
 - (i) – (y) Reserved

Outline of § 50.55a, “Codes and standards”

- Paragraphs of 10 CFR 50.55a (cont.) :
 - (z) Alternative to codes and standards requirements.
A proposed alternative must be submitted and authorized.
 - (1) Acceptable level of quality and safety.
 - (2) Hardship without a compensating increase in quality and safety.



Information Regarding Update of 10 CFR 50.55a

- Title 10 of CFR 50.55a is revised at least once each calendar year
- While using 10 CFR 50.55a, the licensees must use the latest copy of 10 CFR 50.55a available in the Federal Register
- The latest copy of the 10 CFR 50.55a is available in Electronic Code of Federal Regulations at <http://www.ecfr.gov>, or
- The latest copies of the Federal Register and CFR are available at government archives at <http://www.archives.gov/federal-register/>



Questions?

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