



# Updates to ASTM Standards E185 and E2215

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# ASTM Standards Updates

- ASTM is participating in the NESCC effort to foster needed standards and technology for operating plants and new plants.
- ASTM Committee E10 has responsibility for standards specific to RPV structural materials and applications.
  - The E10 standards described in the following slides relate to requirements cited in 10CFR50.61a and 10CFR50 App. G.

## **E10.02 Standards**

- E185 Practice for Design of Surveillance Programs for Light-Water Moderated Nuclear Power Reactor Vessels
  - Revised and Approved in 2010
  
- E2215 Practice for Evaluation of Surveillance Capsules from Light-Water Moderated Nuclear Power Reactor Vessels
  - Revised and Approved in 2011

# Suggested Action

Due to improvements in both standards...

## ■ Update 10 CFR 50, Appendix H

- Reflect changes in E185 for design of RPV surveillance programs for new plants
- Incorporate E2215 (in place of E185) for post-irradiation testing of surveillance capsule for all plants

# Compared Versions of E185

The following are differences between the  
1982 and 2010 versions of E185

- Post-irradiation testing and evaluation requirements moved from E185 to E2215
  - E185 scope restricted to surveillance program design requirements
- Modifications made to surveillance capsule withdrawal schedule, and clarifications and refinements made to Definitions

## Compared Versions of E185 cont'd.

- HAZ specimens not required for new surveillance capsules
- Selection of materials for surveillance program now based on projected transition temperature shift
- Charpy V-notch specimens for each capsule increased from 12 to 15
- Required fracture toughness test specimens for new plants
- Modified limits on lead factor

# Comparison of E185 and E2215

- Post-irradiation evaluation requirements moved from E185 to E2215 to better conform with 10CFR50 Appendix H
- HAZ specimen testing excluded for existing surveillance capsules (no value added based on industry experience)
- Fracture toughness testing added as optional test
- Reporting requirements refined

# Compared Versions of E185

The following are differences between the 2002 and 2010 versions of E185

- Definitions added for *limiting material* and *standby capsule*
- Clarification of *beltline* definition
  - “Required materials” clarified
  - Limiting weld and base materials outside of beltline must be considered
- Lead factor recommendation changed to 1.5 – 5 to ensure data does lead the reactor vessel; *EOL* modified to *end-of-license*



# Compared Versions of E185 cont'd.

- Required number of capsules increased to 4 – 5; remains based on predicted shift
- Withdrawal schedule simplified and improved:
  - Set target fluence as a fraction of EOL ID fluence for all capsules versus basing it on absolute value of fluence; intended to ensure relevancy to the RV
  - Changes result in more appropriate fluence for the first capsule; prior schedule basis could result in removal at too low of a fluence to be of value

## Next Steps

- Continue dialogue between ASTM and NRC in order to provide advice on incorporating the new standard (E2215) into 10CFR50 Appendix H, on establishing the optimum surveillance capsule withdrawal schedule, and on defining the needs for new plants.
- Perform similar effort on other ASTM Standards as appropriate.



# ASTM Contact

To obtain copies of the latest versions of  
E185 and E2215, simply contact:

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# ASTM International

Thank you for your time.

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