



**U.S.NRC**  
UNITED STATES NUCLEAR REGULATORY COMMISSION

*Protecting People and the Environment*

## **Office of New Reactors**

# **Revision of 10 CFR Part 50, Appendix I Regulations and Guidance**

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NEI Radiation Protection Forum  
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# Objective

- Objective is to explore greater alignment with ICRP Publication 103.
- Given adequate protection, discussion is to focus on discerning the benefits and costs associated with revising 10 CFR Part 50, Appendix I regulatory framework in coordination with a parallel revision of the dosimetry basis of 10 CFR Part 20



# 10 CFR Part 50, Appendix I Background

- **Outdated Appendix I numerical guides for design objectives**
  - dose criteria based on ICRP 2 dosimetry concepts
  - criteria inconsistent with current Part 20 (ICRP 26/30)
  - criteria inconsistent with ICRP 60 and current 103 recommendations
- **Inefficient for licensees and NRC (two different methods applied in assessing doses to the public)**
- **Inconsistent with global approach in licensing new plants and operating existing plants**
- **Potential challenges in design certifications & new plant licensing**

## 10 CFR Part 50, Appendix I Background Cont.

- Commission believes that the current NRC regulatory framework of 10 CFR Part 50, Appendix I, and reactor oversight program is working properly.
- The alignment of 10 CFR Part 50, Appendix I regulations and design objectives with ICRP Publication 103 recommendations would not change the design objective criteria and core of regulatory guidance used by the nuclear power industry in demonstrating compliance with these requirements.

# Basis of 10 CFR Part 50, Appendix I Design Objectives Options

## Options:

- 1: No change to the basis of 10 CFR Part 50, Appendix I design objectives and continue to apply the requirement under existing NRC guidance and industry practices.
- 2: Align dose definitions and quantities of 10 CFR Part 50, Appendix I criteria with the ICRP 103 recommendations, given a revision of 10 CFR Part 20.
- 3: Align dose definitions and quantities of 10 CFR Part 50, Appendix I design objectives with the current framework of 10 CFR Part 20 based on ICRP Publication 26, if 10 CFR Part 20 were not revised.

# Basis of 10 CFR Part 50, Appendix I Design Objectives

**What are the benefits and impacts of each option identified above?**

- Is there a single prime option?**
- Is there a preferred ranking of the options?**

# **Basis of 10 CFR Part 50, Appendix I Design Objectives**

**What is the scope of operational impacts and costs in updating programs and procedures given a revision of 10 CFR Part 50, Appendix I design objectives and NRC guidance?**

**Identify specific types of impacts that the NRC should consider in implementing a revision of 10 CFR Part 50, Appendix I design objectives and NRC guidance to ICRP Publication 103 recommendations.**

# Voluntary or Required Implementation Options

## Options:

**A: No change. Continue with current requirements and guidance for all currently licensed and operating plants under 10 CFR Parts 50 and 52.**

**B. Make the implementation of new requirements voluntary for all currently licensed and operating plants under 10 CFR Parts 50 and 52 using a separate set of revised 10 CFR Part 50, Appendix I regulations and guidance.**

**C. Require the implementation of revised 10 CFR Part 50, Appendix I regulations and guidance for all operating plants and applicants over time with a mandated common implementation date.**



# Approaches and Considerations Options

## Options:

**A: Limited Scope Revision – Target only those elements of the guidance dealing with dose conversion factors and, if necessary, directly supporting radiological parameters.**

**B: Expanded Scope Revision – In addition to the above, evaluate the basis of specific parameters used in dose calculations, and assess the need to update or retain specific default assumptions and values.**

# Approaches and Considerations Options (Continued)

## Options:

**C: Full Scope Revision – Conduct a full review of the guidance, including a complete update of models addressing liquid and gaseous treatment options and development of radiological effluent source terms, atmospheric and aquatic dispersion, and environmental transport using the current literature and industry standards.**

# Approaches and Considerations

**Which above option should the NRC apply in aligning 10 CFR Part 50, Appendix I regulations with ICRP Publication 103 if 10 CFR Part 20 were revised, or with ICRP Publications 26 and 30 if 10 CFR Part 20 were not revised?**

# Scope of Revisions

## Provisions That May Need to be Reviewed and Updated:

- Numerical design objectives
- Organ numerical design objectives
- Annual gamma and beta air dose for gaseous effluents
- Light-water-cooled reactor provisions of Appendix I to 10 CFR Part 50
- Compliance with requirements for “licensed operation” under 10 CFR Part 20

# Outreach Activities

- Web Site publically available
- FRN published inviting inputs (72 FR 32198)
- Dedicated web address for comments
- FSME Newsletter (No. 09-1)
- Press Release (No. 09-078)
- All State Letter (FSME-09-025)
- Staff presentations at NEI HP Forum & HPS meetings
- Workshops on Part 20 & 50 revisions held on Oct 25-27, 2010
- Washington, D.C. session addressed Part 50, App. I

# What Have We Heard?

- Wide range of views on major topics
- General support for increasing alignment with international recommendations and other national regulations to improve consistency and trans-boundary considerations
- General agreement that scientific information should be updated and integrated with other Federal agencies

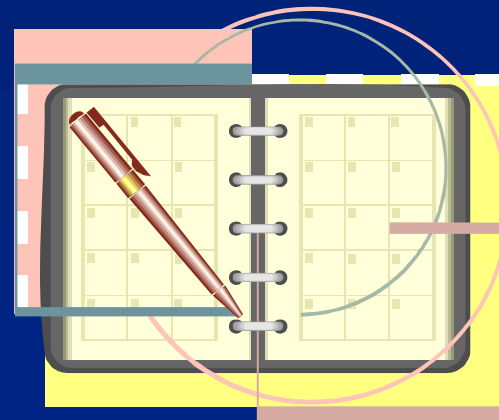


# Highlights of Feedback

- Nuclear industry generally supportive of NRC revision, *but*:
- NRC should take that opportunity for total revision of HP regulations
- Revision should consider combining all 10 CFR Parts 1 to 199 radiation protection regulations under one Part
- Concerns expressed on proposed implementation schedule
- Impacts on operations and programs need to be assessed
- Concerns noted about revision of 40 CFR Part 190
- Will EPA revision be coordinated with that of NRC?
- EPA staff noted that Part 190 is being considered for an update
- EPA may expand Part 190 requirements to include ground water
- NRC to ensure that guidance is properly integrated with new regulations and issued at the same time

# Schedule

- **In 2010: Initiated detailed discussions, including possible workshops, on options and impacts**
- **Technical Basis support for data needs**
- **Ongoing interactions with Federal Agencies and State Agencies**
- **Monitoring of international developments**
- **2011-2012: preparation of next SECY paper**





# Questions ?

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