



# Overview of Proposed Update of the Dosimetry Basis to 10 CFR Part 50, Appendix I Design Objectives

2012 NEI Radiation Protection Forum  
Westin Boston Waterfront

Boston, MA  
August 8, 2012

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## Rationale for Update

- Outdated Appendix I numerical guides for design objectives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 103 recommendations
- Difficult to defend a dual system of radiation protection
- Inconsistent with global approach in licensing new plants
- Inefficient for licensees and NRC staff
- Potential challenges in design certification & plant licensing
- *See SECY-08-0197 and SECY-12-0064 for details*

## Update of Appendix I to Part 50

- Focus in Updating Appendix I & Guidance
  - align App. I criteria with Part 20 if revised to ICRP 103; if not,
  - align App. I criteria with current Part 20 and ICRP 26 & 30
  - reconsider criteria in Sections II.A, II.B, and II.C
  - update cost-benefit criteria in Section II.D – ongoing effort by NRR
  - update definition of dose receptors in Sections II and IV
  - revise Section I in differentiating applicability between LWR and other non-LWR designs
  - review and update NRC guidance and regulatory guides
  - mandated implementation of revised regulations
  - consider parallel rulemakings, Part 20 and Part 50, Appendix I
  - implement revised regulations on a common effective date

## Update of Appendix I to Part 50, cont'd

- Dose criteria - Sect. II.A, II.B, & II.C
  - update dose definitions and express doses as ED or TED
  - keep the 3 & 5 mrem annual total body dose criteria for liquid and gaseous effluents as ED or TED
  - define age groups consistent with Part 20 and Part 50, App. I
  - assess whether gamma and beta air dose criteria should remain
  - assess need to retain provisions for releases and doses dominated by noble gases and radio-iodines
  - assess whether to omit reporting requirements for organ doses, e.g., skin and thyroid, but have results available for inspection
  - expand groupings of radionuclide dose contributors, as:
    - > particulates, noble gases, radio-iodines, vapors,
    - > elemental and organic forms, and gases other than noble gases,
    - > ensure consistency with ICRP 103-based models and DCFs

## Update of Appendix I to Part 50, cont'd

- **Cost-benefit criteria - Section II.D**
  - revise the cost-benefit ratio of \$1,000 per person-rem to post-2012-dollars using a recent NRR study
  - evaluate effluent treatment system designs and effectiveness in new reactor design certifications
  - reconsider process in determining the need for system augmentation in order of diminishing cost-benefit returns
  - review “items of reasonably demonstrated technology” for effluent treatment systems, and revise if needed
  - restructure listings of effluent treatment systems in RG 1.110, as potential system augmentations
  - revise the associated maintenance, operating, and other costs of treatment systems in RG 1.110 appendices

## Update of Appendix I to Part 50, cont'd

- Other Associated Revisions
  - redefine compliance requirements for “licensed operation” for sites with multiple licensees under Part 20.1301(a)(1)
  - provide further elaboration on compliance with Part 20.1301(e) [40 CFR Part 190] in Part 20 or guidance
  - update NRC licensing guidance & documents:
    - > NUREG-0800 (SRP Chpt. 11), RG 1.206, 1.109, et al.,
    - > combine NUREG-1301, -1302, -0543, and -0133 as one
    - > update computer codes and supporting documents

## Outreach Activities

- Fed. Reg. notice inviting input (Vol. 75, No. 186, p.59160)
- NRC public workshops held in Oct. and Nov. 2010
- Industry meetings (NEI, HP Forum, HPS, RETS/REMP)
- FSME Newsletter (No. 09-1)
- Press release (No. 09-078)
- All State Letter (FSME 09-025)
- NRC website for press releases and links:  
<http://www.nrc.gov/about-nrc/regulatory/rulemaking/potential-rulemaking/opt-revise/faqs.html>  
<http://www.nrc.gov/about-nrc/regulatory/rulemaking/potential-rulemaking/opt-revise.html>

## What Have We Heard So Far?

- Wide range of views on policy, regulatory, and technical considerations
- General support for an integrated alignment of Part 20 and Part 50, App. I with ICRP 103 recommendations
- Strong recommendations in including EPA in the dosimetry alignment process, given Part 20.1301(e)
- Some concerns expressed as to the justification for the proposed revision of Part 50, App. I
- Since Part 50.34a is not a safety standard, why align Part 50, App. I design objectives with Part 20?
- Concerns expressed on implementation time and costs to the industry



## Future Plans

- Continue public and industry interactions
- Interact with EPA on its plans to revise 40 CFR 190
- Monitor international efforts in implementing ICRP 103
- Monitor progress in development of ICRP 103-based DCFs
- Evaluate public and industry comments
- Evaluate Commission SRM on SECY-12-0064
- Initiate rulemaking, if allowed to proceed by the Commission
- Conduct public meetings and industry workshops
- Develop technical basis for the Part 50, App. I update
- Coordinate efforts with parallel Part 20 rulemaking activities

## Homework for Licensees/Applicants!

- Should the NRC update Part 50, App. I as considered above?
- Should the focus be only on radiation dosimetry and dose nomenclatures and associated DCFs, with no other changes made to the balance of Part 50, App. I and guidance?
- What are the benefits and impacts to the industry?
- What impacts should the NRC consider in moving forward?
- For the stated impacts, are there estimates of costs and cost-offsets for BWR and PWR plants?
- Is there a preferred industry option for the implementation of revised regulations and guidance?
- What should be the duration of the implementation phase, e.g., 2, 3, or 4 years?

# Update of Appendix I to Part 50



- Thanks for your attention
- Any questions?
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