Next Steps towards Revising Radiation Protection Regulations (10 CFR Part 20)

American Association of Physicists in Medicine
August 8, 2013

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Background

- ICRP revised recommendations announced in December, 2007
- NRC staff analysis indicated areas warranting consideration for revisions – SECY-08-0197, December, 2008
- Commission approved staff recommendation to engage stakeholders and initiate development of technical basis materials on April 2, 2009
- Staff recommendations – SECY-12-0064, April 25, 2012

SRM-SECY-12-0064 Recommendations for Policy and Technical Direction to Revise Part 20

- The Commission issued the Staff Requirements Memorandum (SRM) to the staff on December 17, 2012.
- The Commission approved in part, and disapproved in part, the staff's recommendation from SECY-12-0064.
- The staff is moving forward to implement the Commission's direction.

Overarching Questions to Address

- Cumulative effects of regulation
- Regulatory Impact
- State implementation

Revise Methodology and Terminology

- Commission Direction:
  - Develop a regulatory basis for a revision to 10 CFR Part 20 to align with the most recent methodology and terminology for dose assessment.
  - Develop a regulatory basis for parallel alignment of 10 CFR Part 50, Appendix I (Numerical Guideline for Design Objectives to meet ALARA).
  - Make corresponding changes in other portions of the regulations.
- Proposal:
  - TEDE becomes TED
  - New W_T and W_R values incorporated into definitions
  - Appendix B revised with new ALI and DAC values

Revise Methodology and Terminology

- **Issue:**
  - **Approach to calculation for "member of the public"**
    - **Dose coefficient based on age weighted use of adults, teenagers, children and infants?**
    - **Target dose for ALI at 0.5 mSv (50 mrem) or change?**
    - **Coherence of EPA, DOE, NRC approaches**
  - **Time frame for calculations to be available**

- **Key Questions:**
  - **What would be an appropriate time frame and approach to transition of terminology?**

Individual Protection

- Commission Direction:
  - Disapproved staff's recommendation to develop the regulatory basis to reduce the occupational total effective dose equivalent (TEDE) from 5 rem.
  - Continue discussions with stakeholders on alternative approaches to deal with individual protection at or near the current dose limit.
- Objective:
  - Regulatory requirements and guidance that will ensure that cumulative exposures are examined, and that progressive restrictions can be taken as cumulative exposures increase.

Individual Protection - ALARA

- **Options:**
  - **Performance based requirement added to ALARA and Radiation Protection Programs, with guidance,**

  or

  - **Prescriptive requirements**

Individual Protection – Performance Options

- Require ALARA planning

- Require licensees, as part of their radiation protection program, to establish mechanisms to examine cumulative exposure, and take progressive restrictions on the occupational exposure allowed as cumulative exposures increase.

Individual Protection – Performance Options (continued)

- Require licensees to establish one or more administrative control levels (ACL) as part of their radiation protection program and to establish specific procedures for individual protection.
- Acceptable approaches might include:
  - ACL 2 rem (20 mSv) per year.
  - ACL average 2 rem (20 mSv) over 5 year period (ICRP-103).
  - ACL to use NCRP 10 (mSv) x N (age) cumulative approach.
  - ACL to restrict individuals to 2 rem (20 mSv) if cumulative exposure exceeds xxx mSv.
  - Other Options

Individual Protection – Prescriptive Options

- Require licensees to have a record of all occupational doses (lifetime) if exposures are permitted to exceed 2 rem (20 mSv) per year.
- Require that licensees not allow occupational exposures to exceed 2 rem (20 mSv) in a year if the cumulative occupational exposure exceeds xxx mSv.
- Require licensees be provided with record of all other concurrent sources of occupational exposure.
- Other Options

Individual Protection

- **Key Questions:**
  - **What are the implications of a more structured framework for ALARA planning and implementation in the regulations? What changes to programs would be anticipated?**
  - **How might each approach work for different classes of licensed use?**
  - **Should licensees be allowed to establish different ACL's for different groups of individuals?**
  - **How do the different options for guidance support, or impact, the ability of licensees to best address protection within their programs. Are there other options that could be considered?**

Individual Protection

- Key Questions (continued):
  - Is there other mechanisms to look at cumulative exposures?
  - What would be the impact of clarifying amendments to ensure that occupationally exposed individuals provide their exposure to each licensee under which they may be concurrently receiving exposure?
  - Should States be allowed to use more restrictive or prescriptive requirements if NRC decides to use performance based approach?

Occupational Limit - Lens of the Eye

- **Commission Direction:**
  - **Continue discussions with stakeholders regarding possible revisions to the dose limit (15 rem (150 mSv)) for the lens of the eye**

- **Proposal:**
  - **Develop regulatory basis for reducing limit to 5 rem (50 mSv) LDE**

Occupational Limit - Lens of the Eye

- **Key Questions:**
  - **Are there alternatives to keep cumulative exposure below threshold?**
  - **Viewpoints on the relative importance of health endpoint?**
  - **What methods should be allowed for measurement or assessment?**
  - **What methods should be allowed for recording dose when eye is protected?**
  - **What is impact on licensee activities? State regulatory programs?**

Occupational Limit - Embryo/Fetus

- **Commission Direction:**
  - **Continue discussions with stakeholders regarding possible revisions to the dose limit (500 mrem (5 mSv))**
- **Proposal:**
  - **Develop regulatory basis for reducing limit to 100 mrem (1 mSv)**

Occupational Limit - Embryo/Fetus

- Key Questions:
  - Apply to post declaration or entire gestation period?
  - What should be done if 100 mrem (1 mSv) has already been reached at declaration?
  - What methods should be allowed for measurement or assessment?
  - What is impact on licensee activities? State regulatory programs?

Units of Exposure and Dose

- **Commission Direction:**
  - **Disapproved the elimination of traditional units from NRC regulations. Both traditional and SI units should be maintained.**

- **Proposal:**
  - **Implement Commission Policy Statement – SI units first, traditional units in parenthesis**

Units of Exposure and Dose

- **Key Questions:**
  - **How do we avoid confusion?**
  - **Should Appendix B be given in SI units, or traditional, or both?**
  - **Should licensees be allowed to report in SI?**
  - **What is impact on licensee activities? State regulatory programs?**

Reporting of Occupational Dose

- **Commission Direction:**
  - **Improve reporting of occupational exposure by NRC and Agreement State licensees, some of which do not currently submit reports.**

- **Proposal:**
  - **Add categories of licensed use: e.g., Part 35, medical**
  - **Modify requirements for compatibility**
  - **Explore mechanisms for central repository of data for all to use**

Reporting of Occupational Dose

- **Key Questions:**
  - **What categories should be included?**
  - **What is the rationale for reporting?**
  - **What are health and safety, and/or trans-boundary considerations?**
  - **How to deal with occupational exposure of machine produced radiations?**
  - **What is impact on licensee activities? State regulatory programs?**

Next Steps

- Engage Federal Agencies, States, licensees, and with public stakeholders on each of the topics.
- Develop *Federal Register* Notice with specific proposed options and questions – plan to publish for input late fall.
- Possibility of webinars.
- Further opportunities for comment in 2014 with more specific proposals.
- All comments will be docketed.
- The staff will develop regulatory basis using Commission direction for each technical issue.
- The tentative date for development of the regulatory basis is December, 2015.

Questions?

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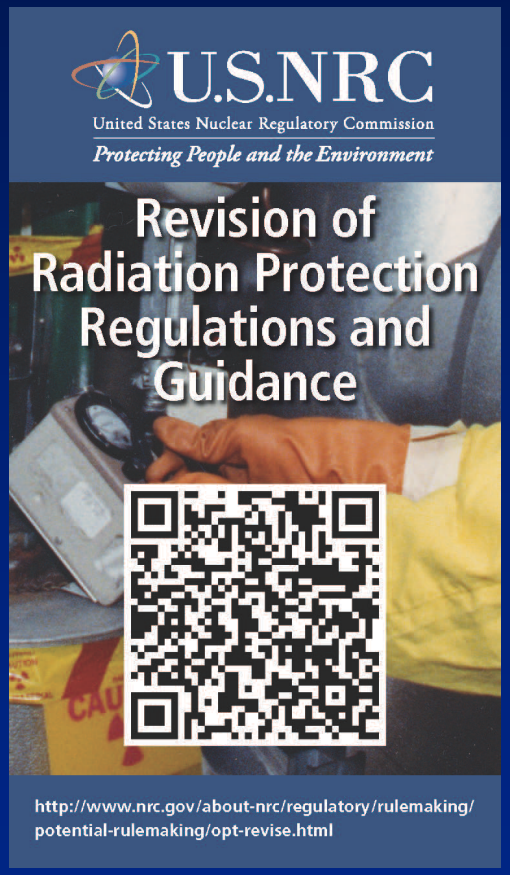
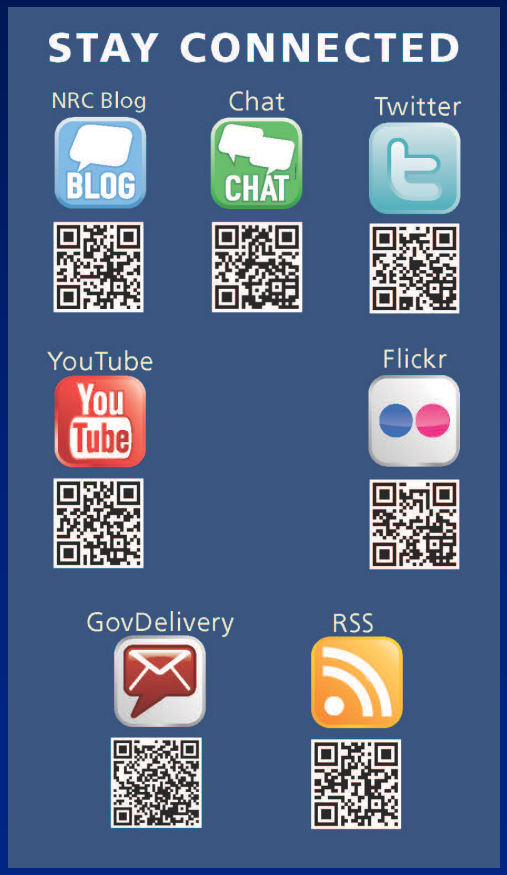
http://www.nrc.gov/about-nrc/regulatory/rulemaking/potential-rulemaking/opt-revise.html





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