

# Office of Federal and State Materials and Environmental Management Programs

*Safety and Security in the Beneficial Applications of Nuclear Materials*

## Advance Notice of Proposed Rulemaking 10 CFR Part 20

Regulatory Information Conference  
March 13, 2014

# History

- **ICRP Recommendations announced December, 2007**
- **Initial Staff Recommendations – SECY-08-0197, December 2008**
- **Staff Recommendations for direction – SECY-12-0064, April 2012**
- **Commission direction SRM-SECY-12-0064, December 17, 2012**
  - **The Commission approved in part, and disapproved in part, the staff's recommendation**
- **Staff preparing Advance Notice of Proposed Rulemaking**

## Areas of Work

- Updated Methodology and Terminology
- Part 20 (Standards for Protection Against Ionizing Radiation) Technical Issues
- Part 50, Appendix I (Numerical Guidelines for Design Objectives to meet ALARA) Technical Issues
- Conforming Changes to other portions of the Regulations

# 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.
- **Approach:**
  - TEDE becomes TED
  - New  $W_T$  and  $W_R$  values incorporated into definitions
  - Appendix B revised with new ALI and DAC values

## Methodology and Terminology Issues

- Implications of using TED in place of TEDE
- Calculation for “member of the public” using age and gender weighted composite
- Effluents pathways each 0.5 mSv (50 mrem) or change?
- Time frame for calculations to be available
  - Coherence of EPA, DOE, NRC approaches, and use of mathematical vs. voxel phantoms
  - Acceptable alternatives? e.g. FGR-13, ICRP final dose coefficients

# Individual Protection - ALARA

- **Commission Direction:**
  - Occupational TEDE limit to remain at 50 mSv (5 rem)
  - Continue discussions with stakeholders on alternative approaches to deal with individual protection at or near the current effective dose limit.
- **Approach:**
  - 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 Approach

- **Require ALARA planning**
- **Require licensee to establish mechanism(s) to examine cumulative exposure, and take progressive restrictions on the occupational exposure as cumulative exposures increase.**
- **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.**
- **Require licensees be provided with record of all other concurrent sources of occupational exposure**

# Individual Protection ACL Options

- **ACL 20 mSv per year**
- **ACL average 20 mSv over 5 year period (ICRP-103)**
- **ACL 10 (mSv) x N (age) (NCRP-116)**
- **ACL to restrict individuals to 20 mSv if cumulative exposure exceeds xx mSv**
  
- **Other Options?**



# Individual Protection Issues

- Implications of a more structured framework for ALARA planning and implementation in the regulations?
- How might each approach work for different classes of licensed use?
- Different ACL's for different groups of individuals?
- Other mechanisms to look at cumulative exposures?
- How to address concurrent exposure?
- Should States be allowed to use more restrictive or prescriptive requirements if NRC decides to use performance based approach?

# Lens of the Eye

- **Commission Direction:**
  - Continue discussions with stakeholders regarding possible revisions to the dose limit (150 mSv (15 rem)) for the lens of the eye
- **Approach:**
  - Reduction to 50 mSv (5 rem) LDE

## Lens of the Eye Issues

- **Relative importance of health endpoint?**
- **Methods for measurement or assessment?**
- **Methods for recording dose when eye is protected?**
- **Are there alternatives to keep LDE cumulative exposure below threshold?**
- **Implications for radiation protection programs?**

# Embryo/Fetus

- **Commission Direction:**
  - Continue discussions with stakeholders regarding possible revisions to the dose limit (5 mSv (0.5 rem )) for embryo/fetus
- **Approach:**
  - Reduction to 1 mSv (0.1 rem)

## Embryo/Fetus Issues

- **Apply to post declaration or entire gestation period?**
- **What should be done if 1 mSv has already been reached at declaration?**
- **Continue to require efforts to avoid substantial variation above a uniform monthly exposure rate?**
- **Methods for measurement or assessment?**

## Traditional vs. SI Units

- **Commission Direction:**
  - Disapproved the elimination of traditional units from NRC regulations. Both traditional and SI units should be maintained.
- **Approach:**
  - Implement Commission Policy Statement – SI first, traditional in parenthesis

## Traditional vs. SI Units Issues

- **What is the impact of changing order of presentation to SI first, traditional in parentheses?**
- **Should licensees be allowed to record and report in SI? Under what circumstances?**
- **Should Appendix B be given in SI, or traditional, or both? Should the SI values be the “regulatory standard”?**
- **How do we avoid confusion?**

# Reporting of Occupational Exposure

- **Commission Direction:**
  - Improve reporting of occupational exposure by NRC and Agreement State licensees, some of which do not currently submit reports.
- **Approach:**
  - Add additional categories of licensed use: e.g., Part 35
  - Modify requirements for compatibility
  - Explore mechanisms for central repository of data for all to use.



## Reporting of Occupational Exposure Issues

- **Are the reasons for reporting now valid for other categories of licensees?**
- **What categories should be added, and why?**
- **What are health and safety, and/or trans-boundary considerations?**
- **Should Agreement States be required to adopt reporting requirements? Rationale? Adequacy and Compatibility level?**
- **How might States incorporate exposure from machine produced radiations?**


## Next Steps

- **Federal Register Notice with specific proposed options and questions.**
  - Advance Notice of Proposed Rulemaking in concurrence
  - Plans of webinar(s)
  - All comments to be docketed
- **Further opportunities for comment on more specific proposals when draft technical basis is developed.**



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

# Questions?





  
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**Revision of  
Radiation Protection  
Regulations and  
Guidance**







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