Options to Revise Radiation Protection Regulations

Further Considerations

Fuel Cycle Information Exchange
June 29, 2010

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Background

- ICRP revised recommendations completed late 2007
- NRC staff analysis indicated areas warranting consideration for revisions
- Commission approved staff recommendation to engage stakeholders and initiate development of technical basis materials on April 2, 2009

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Objective of Staff Effort

- Objective is to explore implications, as appropriate and where scientifically justified, of greater alignment with ICRP Publication 103.
- Given adequate protection, discussion is to focus on discerning the benefits and burdens associated with revising the radiation protection regulatory framework
- Make recommendations to Commission

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Outreach Activities

- **Phase I of outreach has included:**
  - **Presentations to numerous organizations and groups.**
  - **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)**

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Future Plans

- Continue to engage industrial radiography community, other industry segments, and public citizen groups
- Phase II - Facilitated round tables meetings starting in September, 2010
- Phase III – Validation of information received, spring, 2011
- Staff recommendations to Commission – Fall 2011

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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
- Rationale for selecting options not yet well articulated

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Issues

- Effective Dose and Numerical Values
- Occupational Dose Limits
- Dose Limits for Special Populations
- ALARA planning

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Effective Dose

- NRC 10 CFR Part 20 expressed as Effective Dose Equivalent, applied (effective 2008) to both external and internal exposure
- Options:
  - No Change – TEDE
  - Express as TED
  - Allow use of either
- Implications:
  - Impact on records and reports?
  - Impact on compliance with limits (DDE vs. TED)?

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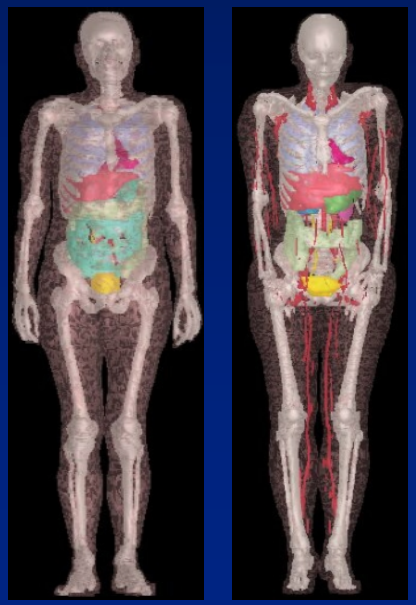
Numerical Values

- ICRP has provided updated Tissue and Radiation Weighting Factors (W_T, W_R)
- ICRP working on revised dose coefficients based on new values, models, decay data
- Options:
  - No Change
  - Update to new values
- Implications:
  - Impacts of timing?
  - Other implications?



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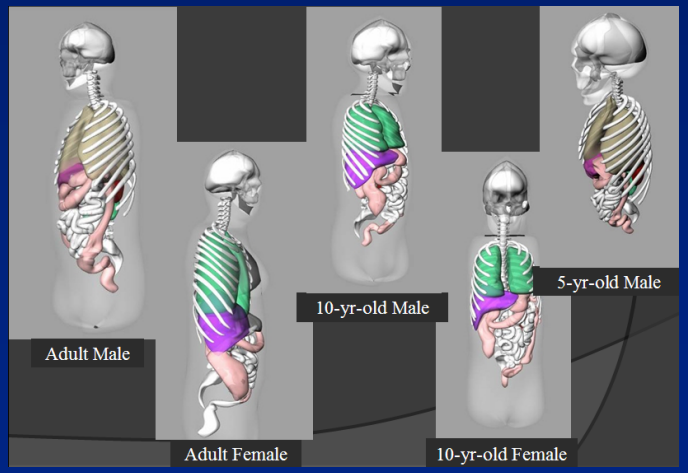
What Have We Heard?

- **Effective Dose**
  - Supportive of update
  - Questions on application of current rule
  - Impact of methodology on ability to comply with options for dose limits
- **Numerical Values**
  - Supportive of update
  - Recognition of schedule



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Occupational Dose Limits

- ICRP Recommendation is 10 rem over 5 years, with a maximum of 5 rem in any one year
- Part 20 limit is 5 rem per year
- Options:
  - No change: 5 rem per year
  - ICRP recommendation
  - 2 rem per year
- Implications:
  - Impacts of reduced values?
  - Impacts of increased recordkeeping?

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What Have We Heard?

- **Occupational Dose Limits**
  - Many want limit to stay at 50 mSv/yr (5 rem)
  - A few comments to reduce limit
  - Certain groups of licensees continue to have individuals above 20 mSv/yr (2 rem)
  - Preference by some stakeholders to keep higher limit as legal boundary, and increase ALARA and perhaps constraints to reduce doses

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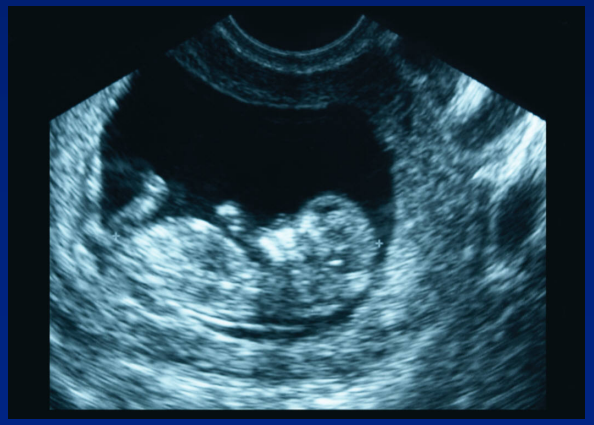
Dose Limit for Embryo/Fetus

- ICRP recommendation is 100 mrem after notification of pregnancy.
- 10 CFR 20.1208 is 500 mrem over gestation period
- Options:
  - No Change
  - ICRP Recommendation
  - Other single value, such as 50 mrem, after declaration
- Implications:
  - Impacts of reduced values?
  - Impacts of increased recordkeeping?



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What Have We Heard?

- **Dose Limits for Embryo/Fetus (Occupational)**
  - Mixed feedback
  - Lack of data
  - Some options challenge limits of detection for monitoring
  - Nuclear Medicine labs prefer current limit for operational reasons
- **Public Exposure**
  - Should special provisions for doses greater than 100 mrem be discontinued for children, pregnant females, and nursing mothers?

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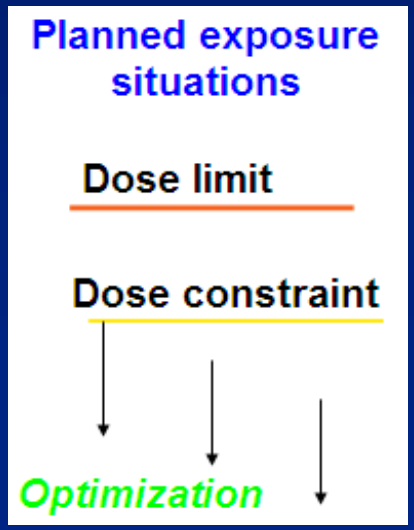
Constraints (1)

- ICRP recommends the consistent application of constraints as a tool in optimization of protection.
- Constraints are not to be limits.
- Part 20 already as a constraint for public exposure from airborne radionuclides from materials facilities.
- Many large licensees already use planning values in ALARA programs.



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Constraints (2)

- **Options:**
  - No Change
  - Require a licensee to use constraints as part of radiation protection program
  - Specify a numeric value licensee is not to exceed
- **Implications:**
  - Impacts to Programs?
  - Benefits in protection seen?
  - Relationship to Dose Limit?
  - Appropriate insertion of regulatory requirement?

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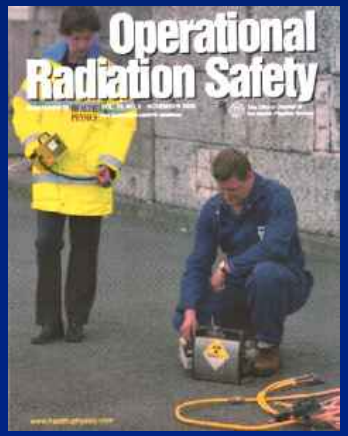
What Have We Heard?

- **Use of Constraints for ALARA planning**
  - **Constraints not well understood**
  - **Questions on inspection, compliance, reporting**
  - **Detail of how a requirement might be constructed is critical to understanding impacts**
  - **Consideration of what justifications would be appropriate for exceeding a constraint, and what actions would be needed**
  - **Some stakeholders leaning to endorsement of constraint, and setting a value, to provide flexibility**



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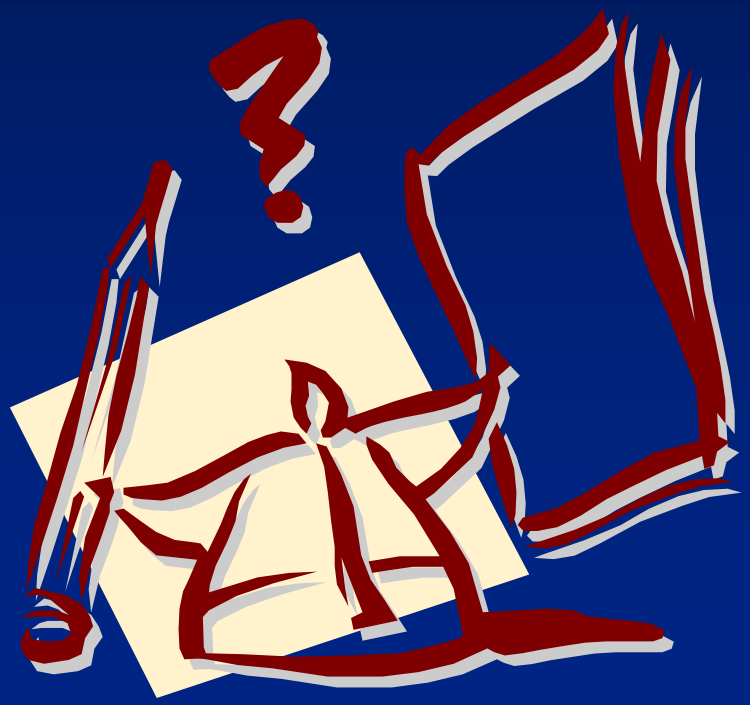
Questions ?

- **Web pages**

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

- **Email Address: regs4rp@nrc.gov**



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