Doses to Special Populations

NRC Regulations Embryo/Fetus

- Dose Limit for Embryo/Fetus applies when woman has formally declared her pregnancy
- Limit is 500 mrem (5 mSv) over gestation period
- Licensee must assess the dose already received, and control additional exposures to within limit
- Additional 50 mrem (0.5 mSv) allowed in situation where 500 mrem has already been exceeded at time of declaration

International Embry/Fetus

- ICRP Recommendation is that protection should be generally equivalent to that provided to a member of the public
- ICRP recommendation is 100 mrem after notification of pregnancy.
- ICRP recommendations adopted in many countries
- Some countries still have other values
  - Canada , for example, uses 400 mrem (4 mSv)
  - International Basic Safety Standards currently being updated, and draft uses 100 mrem (1 mSv)

Public Exposure Limits

- ICRP recommended limit is 100 merm (1 mSv), with allowance to up to 500 mrem (5 mSv) for special short term circumstances
- ICRP also recommends that sensitive age groups, such as children, not be allowed to exceed 100 mrem (1 mSv)
- NRC requires application and approval for alternative dose limit, but do not specify the age of individuals who could be allowed to receive higher short term exposure

Options for Embryo/Fetus

- **3.a: No change. Continue with the dose limit of 0.5 rem (5 mSv) per year.**
- **3.b: Change the current regulation to align with the current ICRP Publication 103: 100 mrem (1 mSv) after the declaration of pregnancy.**
- **3.c: Change the current regulation to another single value after declaration: For example, 0.05 rem (.5 mSv) after declaration, the provision of the current rule if a dose of 0.5 rem (5 mSv) has already been exceeded at the time of declaration of the pregnancy.**

Questions for Embryo/Fetus

Q3-1: Are there any significant anticipated impacts associated with reducing the dose limit to the embryo/fetus of a declared pregnant woman, including operational impacts?

Questions for Embryo/Fetus

Q3-2: Are there any anticipated implementation impacts on record keeping?

Questions for Embryo/Fetus

Q3-3: Is there a reduction in burden in assessment and record keeping if the ICRP recommendation is considered for adoption?

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Questions for Embryo/Fetus

Q3-4: Are there technological implementation issues, such as limits of detection, which would make adoption of the ICRP recommendation difficult in certain circumstances?

Questions for Embryo/Fetus

Q3-5: Is there data on actual dose distributions to the embryo/fetus of a declared pregnant worker? What are the trends for this data? Is this data available to share with the NRC?

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Options for Public Exposure

- **3.2-a: No change. Continue to allow a dose limit of 0.5 rem (5 mSv) per year, applicable only upon specific approval of a licensee request.**
- **3.2-b: Change the current regulation to limit the applicability of the provision to situations in which sensitive populations are not receiving the exposure.**
- **3.2-c: Clarify in guidance that the NRC will require licensees to demonstrate that sensitive populations are not included in any proposals for alternative public dose limits.**

Questions for Public Exposure

Q3.2-1: Are there any significant anticipated impacts associated with limiting the applicability of alternative public dose limits?

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Questions for Public Exposure

Q3.2-2: Are these impacts the same for the options of a rule change, or for changes to guidance?

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Questions for Public Exposure

Q3.2-3: Is there data available about the actual use of the alternative dose criteria? Is this data available to share with the NRC?

Other Questions ?

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