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Comparison of NRC and DOE Calculations

- **Comparison**

	NRC	DOE
Peak Annual Dose (10,000 yrs-- Juvenile Failure)	0.004 mrem/yr	0.008 mrem/yr
Annual Dose at 50,000 yrs (I-129 +Tc-99)	0.6	0.2
Waste Package Neutralized (10,000 years)	0.6	770

- **Important differences in the models**
  - Waste package juvenile failure and degradation
  - Cladding
  - Retardation in saturated zone
  - Dilution

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Comparison of NRC and DOE Neutralizations

- **NRC neutralization scales according to number of SNF waste packages:**

$$(.004)\frac{(SNF \bullet 6500)}{(SNF \bullet 39)} \approx 0.7$$

- **DOE neutralization scales according to SNF packages and dilution factor**
- **Another key effect however is contribution of HLW:**

$$(.008)\frac{\left(.014 \bullet SNF \bullet \frac{7700}{3300 \bullet D} + HLW \bullet \frac{1700}{160 \bullet D}\right)}{.014 \bullet SNF/(3300 \bullet D/3.7)} \approx 230 + 540 \approx 770$$