

69. The dose equivalent is the product of the absorbed dose and the RBE factor, so the absorbed dose is  $(\text{dose equivalent})/(\text{RBE}) = (250 \times 10^{-6} \text{ Sv})/(0.85) = 2.94 \times 10^{-4} \text{ Gy}$ . But  $1 \text{ Gy} = 1 \text{ J/kg}$ , so the absorbed dose is

$$(2.94 \times 10^{-4} \text{ Gy}) \left( 1 \frac{\text{J}}{\text{kg} \cdot \text{Gy}} \right) = 2.94 \times 10^{-4} \text{ J/kg} .$$

To obtain the total energy received, we multiply this by the mass receiving the energy:  $E = (2.94 \times 10^{-4} \text{ J/kg})(44 \text{ kg}) = 1.29 \times 10^{-2} \text{ J}$ .