2) $E_1 = hu_1$
$E_2 = hu_2$
$E_3 = hu_3$

Energy transferred

$$d\varepsilon = (R_{in})_u - (R_{out})_u + \sum Q$$

Only uncharged and non Bremstrahlung photons

$$d\varepsilon = E_1 - E_2$$
$$d\varepsilon = hu_1 - hu_2$$

Energy Imparted

$$\varepsilon = (R_{in})_u - (R_{out})_u + (R_{in})_c - (R_{out})_c + \sum Q$$
$$d\varepsilon = E_1 - E_2 - E_3$$
$$d\varepsilon = hu_1 - hu_2 - hu_3$$

4) Find Fluence

Given: K = 1.37 Gy = 1.37 J/kg
E = 14.5 MeV = 2.32E-12 J
Fn = 0.709E-8 cGy/cm^2 = .709E-14 J/(kg*m^2)

$$K = \int \Phi\, E\, Fn\, dE$$
$$\Phi = \frac{E * Fn}{K}$$
$$\Phi = \frac{(2.32 * 10^{-12}) * (0.709 * 10^{-14})}{1.37}$$
$$\Phi = 1.2 * 10^{-26} \frac{J}{m^2}$$

5) Equivalent $H = \sum w_r D_{TR}$

Stomach

H= (20)(200 mGy) + (1)(20 mGy) = 4.02 Gy

Liver

H= (20)(20 mGy) + (1)(10 mGy) = 50 mGy

Effective

Stomach

E = (0.12)(200 +20) = 26.4 Sv

Liver

E = (0.05)(2+10) = 0.6 Sv