1.76

1.76 Estimate the increase in pressure (in psi) required to decrease a unit volume of mercury by 0.1%.

$$E_V = -\frac{dp}{d\forall/\forall} \qquad (Eq.\ 1.12)$$

Thus,

$$\Delta p \approx -\frac{E_V \Delta \forall}{\forall} = -\left(4.14 \times 10^6 \ \frac{lb}{in.^2}\right)(-0.001)$$

$$\Delta p \approx \underline{\underline{4.14 \times 10^3 \ psi}}$$