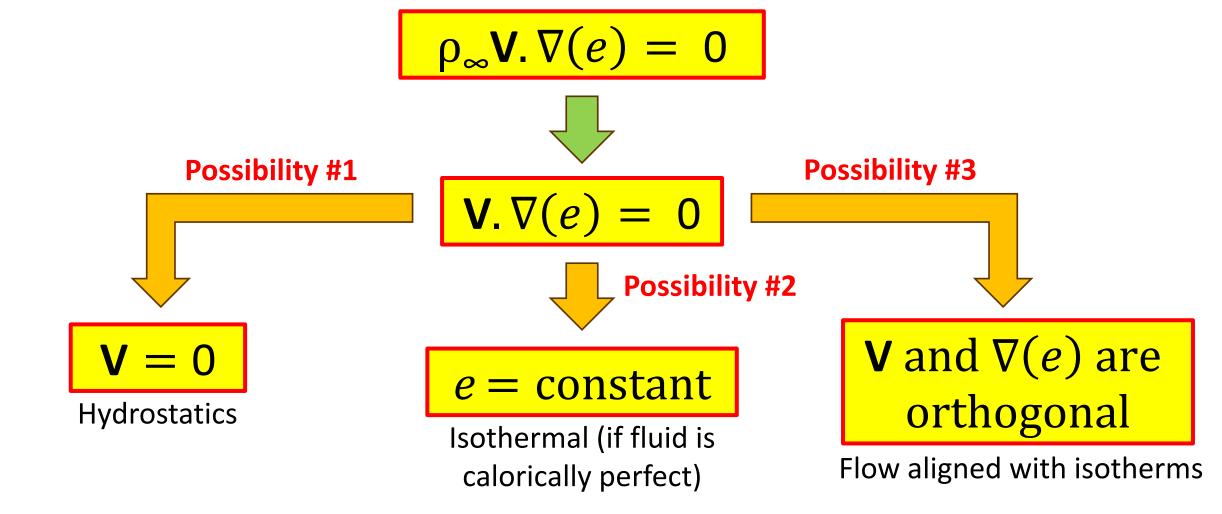
$$\rho_{\infty} \mathbf{V}. \nabla \left(\frac{1}{2} |\mathbf{V}|^2\right) = -\frac{u \partial(\mathbf{p})}{\partial \mathbf{x}} - \frac{w \partial(\mathbf{p})}{\partial z}$$

$$\rho_{\infty} \mathbf{V}. \nabla \left(e + \frac{1}{2} |\mathbf{V}|^2 \right) = -\frac{\partial (\mathbf{pu})}{\partial \mathbf{x}} - \frac{\partial (\mathbf{pw})}{\partial z}$$

$$\rho_{\infty} \mathbf{V}. \nabla(e) = -p \left[\frac{\partial(\mathbf{u})}{\partial \mathbf{x}} + \frac{\partial(\mathbf{w})}{\partial z} \right]$$

$$\rho_{\infty} \mathbf{V}. \nabla(e) = -\mathbf{p} \nabla.\mathbf{V}$$

RHS = ZERO (incompressible continuity eqn)



Error in Lecture (at 18:47 mark): Only the isothermal possibility was assumed in the lecture. Hat-tip to Prakash Singh for pointing this out.