The conditions in the reservoir (or stagnation chamber) of Tunnel B at the Arnold Engineering Development Center (AEDC) are that the pressure \( (p_0) \) is \( 5.723 \times 10^6 \text{ N/m}^2 \) and the temperature \( (T_0) \) is 750 K. Using the perfect-gas relations, what are the density and the viscosity in the reservoir?

\[
\rho = \frac{p}{RT} = \frac{5.723 \times 10^6}{(287)(750)} = 2.658 \text{ kg/m}^3
\]

\[
\nu = 1.458 \times 10^{-6} \frac{750^{1.5}}{750 + 110.4} = 3.48 \times 10^{-5} \text{ kg/s m}
\]