Riser hydrodynamics are a function of the gas and solids flow rates as well as the exit geometry, particularly when operated above the upper transport velocity. This work compares the exit voidage for multiple geometries and two different Geldart class B solids: glass beads and coke. Geometries were changed by modifying the volume of an abrupt T-shaped exit above the lateral riser exit. This was accomplished by positioning a plunger at various heights above the exit from zero to 0.38 m. A correlation was developed for the exit voidage as a function of the noted length and the following hydrodynamic parameters: load ratio, density ratio, diameter ratio and Reynolds No. In addition to the correlation, 95% confidence intervals are noted.