**Video 1**

Laser induced fluorescence of the $hi\_2$ case measured at a cross-section 4$D$ from the apex as flow moves into the screen in real time. The darker portions represent fluid from the lower density left-hand channel. Numerous large diameter coherent streamwise orientated vortices can are visible on the left portion of the video as they advect through the measurement plane.

**Video 2**

Laser induced fluorescence of the $hi\_1$ case measured at a cross-section 4$D$ from the apex as flow moves into the screen in real time. The darker portions represent fluid from the lower density left-hand channel. The mixing interface slumps to a greater degree than that observed in the $hi\_2$ case and numerous smaller diameter streamwise orientated interfacial instabilities are observed to quickly advect through the mixing interface. Notably, large diameter coherent streamwise orientated vortices such as present in the $hi\_2$ case are not present on the left-hand side of the video.

**Video 3**

Plan view videos of mixing processes in the $hi\_2$ case made visible by a black light fluorescent imaging technique. The video playback speed has been increased by a factor of 4x. The line represents the centerline of the confluence (i.e. $\tilde{y}$ = 0) and the numbers indicate intervals of flow depth (i.e. intervals of 0.07 m from the apex). Please refer to text for accompanying discussion.

**Video 4**

Plan view videos of mixing processes in the $eq\_1$ case made visible by a black light fluorescent imaging technique. The video playback speed has been increased by a factor of 4x. The line represents the centerline of the confluence (i.e. $\tilde{y}$ = 0) and the numbers indicate intervals of the flow depth (i.e. intervals of 0.07 m from the apex). Please refer to text for accompanying discussion.

**Video 5**

Plan view videos of mixing processes in the $eq\_2$ case made visible by a black light fluorescent imaging technique. The video playback speed has been increased by a factor of 4x. The line represents the centerline of the confluence (i.e. $\tilde{y}$ = 0) and the numbers indicate intervals of the flow depth (i.e. intervals of 0.07 m from the apex). Please refer to text for accompanying discussion.

**Video 6**

Laser induced fluorescence of the $hi\_3$ test case in which the discharges in both channels were 0.0011 m$^{3}$/s and $\Delta\rho$ was 0.66 kg/m$^{3}$. Measurements were performed on a cross-section perpendicular to the streamwise flow component moving into the screen at 4$D$. The darker portions represent fluid from the lower density left-hand channel. The mixing interface slumps to much greater degree than that observed in either $hi\_1$ of the $hi\_2$ case.