Dam Break problem for the shallow water equations

$$\begin{pmatrix} h \\ hv \end{pmatrix}_t + \begin{pmatrix} hv \\ hv^2 + \frac{1}{2}gh^2 \end{pmatrix}_x = 0 \ ,$$

$$h(0,x) = \begin{cases} h_l = 3 & \text{if } x < 0 \\ h_r = 1 & \text{if } x > 0 \end{cases} \ , \qquad v(0,x) = 0$$