

ABSTRACT

EROSION PORTS FOR SHUNT TUBES

A gravel pack apparatus for a wellbore has a shunt tube disposed along the apparatus near a wellscreen. The shunt tube is typically composed of stainless steel and has an internal passage for conducting slurry. Along its length, the tube has flow ports for passing the conducted slurry into the wellbore. The exit ports can use erosion inserts composed of erodible material, barrier inserts having breakable barriers, flow nozzles with external sheaths or caps, erosion-resistant bushings disposed on the flow nozzles, etc. The tube can also include a tube body having the exit ports and flow nozzles integrally formed thereon. The tube body can couple end-to-end with sections of shunt tube.

FIGURE 4A