

Figure 3.3 shows the damping characteristic of the stilling well over a range of frequencies from seconds to twenty four hours. The degree of damping achieved with an orifice inlet is dependent on the amplitude of the disturbance, larger disturbances being more significantly reduced. The frequency at which the attenuation becomes insignificant is dependent on the size of the orifice whose recommended diameter should be one tenth that of the stilling well. However, at some sites it may be found that a smaller orifice is desirable to reduce unwanted disturbances. The optimum can only be achieved by experimentation in obtaining the maximum reduction of the unwanted wave oscillations without significantly affecting the response of the well at tidal frequencies.

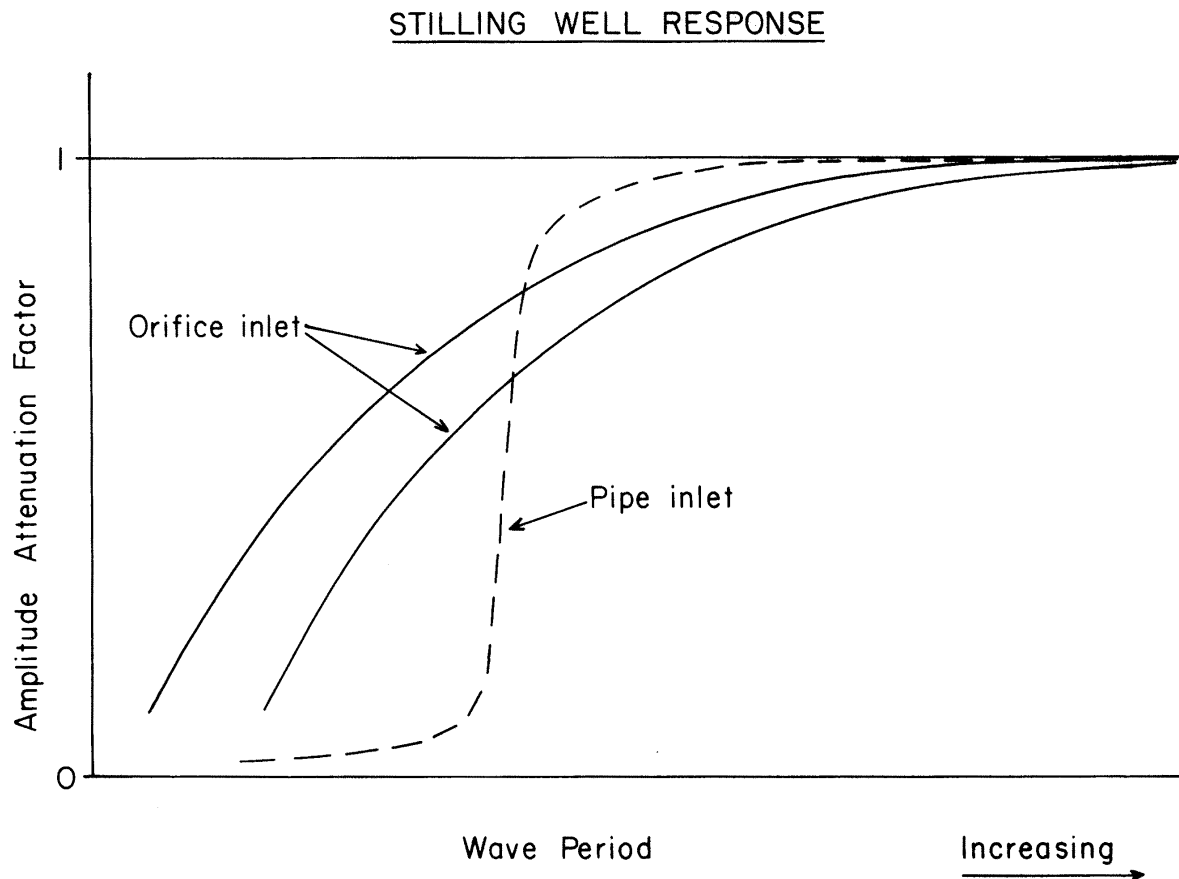


Figure 3.3

(iii) Pipe Inlet

Figure 3.3 also shows the attenuation produced in a stilling well having a pipe inlet. It will be noted that there is a critical frequency above which outside disturbances are virtually eliminated and below which, there is little if any attenuation. Using a combination of pipe lengths and diameters the critical frequency can be placed wherever desired. However, the theory from which this relationship is derived assumes laminar flow conditions, and these can only be achieved by use of relatively large diameter pipes necessitating them being quite long. Pipe inlet systems are seldom used, unless they are necessary in order to achieve a sufficient depth of water, since they are expensive to construct, prone to siltation problems and are difficult to clean.