

Water hammer modeling in a tree system positioned in a discharge line

Thorough studies of the bibliography regarding the water hammer phenomenon, which is represented by the rapid change of flow in the pressure conduits, happens in two forms; increasing and decreasing. Both forms are harmful to the network operation and command, and may sometimes lead to its break. These studies allow us to properly value the real value of this phenomenon.

It is noted that this phenomenon is present when maneuvers that can be accidental or quite normal, such as stopping a pump, closing or opening a valve interfere with the conditions of steady flow. This leads to large pressure and velocity variations which can cause implosions or bursting of free or buried pipes and the accessories therefrom.

To understand and control this bad phenomenon, our study aims to: the use of the graphical method according to Loewy-Schnyder-Bergeron in order to find a model to determine the characteristics values of water hammer in tree systems , and for that, we will take into account the case of free or buried pipes with an application that will be made for comparison purposes, with three materials that form various conduits: Steel, PVC and HD-polyethylene.