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Drinking Water
Engineering and Science
Discussions

Interactive comment on "Prelocalization and Leak detection in water drinking distribution network using modeling-based algorithms: Case study: The city of Casablanca (Morocco)" *by* Faycal Taghlabi et al.

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I would like to add a comment on this question: (3) Line 110 "Roughness coefficient of materials" Physical modeling of your network requires the roughness of the pipes. It should be noted that there is great uncertainty about the values considered. How did you minimize these uncertainties and their impact on the results given by EPANET.

The pressure and flow within a network vary depending on the time of day. Because of reduced night water consumption, the average pressure inside the network increases.

Based on the values established for these two parameters, three simulations were carried out to analyze the influence of the measurement period on the calculated pressure difference. The following figure shows three pressure drop curves caused by a leak halfway through a pipe without a junction but with 3 base flow rates flowing in the different pipe: 5, 10 and 15 L / s.

Thus, for the same leakage flow rate, it is noted that the pressure drop is all the greater the higher the base flow rate flowing in the pipe, this is due to the power 2 of the flow rate in the Darcy-Weisbach formula. Pressure drops are then greater during periods of high consumption, even for low leakage rates.

Figure 1 Pressure drops vs Leakage rate

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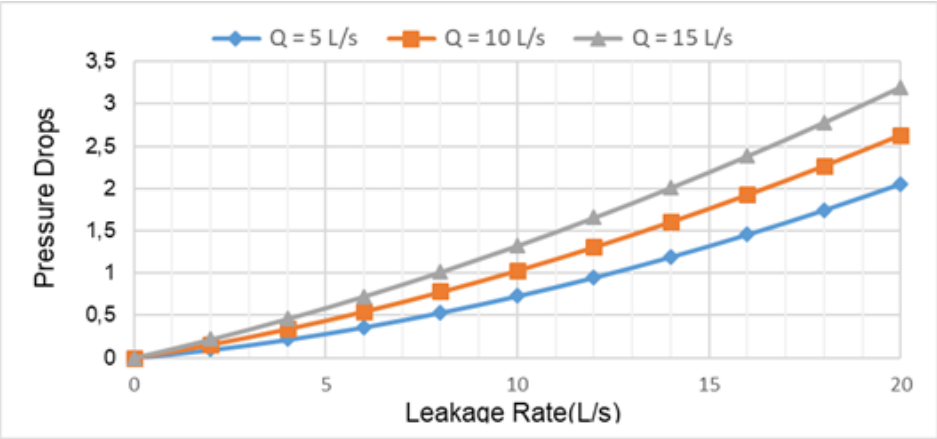
Q = 5 L/s
Q = 10 L/s
Q = 15 L/s
Pressure Drops
3,5
3
2,5
2
1,5
1
0,5
0
0
5
10
15
20
Leakage Rate(L/s)

Fig. 1.