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Effect of Breakage Level One in Design of Water Distribution Networks

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Abstract Design of water distribution networks (WDNs) that do not consider performance criteria would possibly lead to less cost but it could also decrease water pressure reliability in abnormal conditions such as a breakage of pipes of the network. Thus, awareness of the situation of consumption nodes, by considering water pressures and the amount of water that is being supplied, could be an effective source of information for designing high performance WDNs. In this paper, Two-loop and Hanoi networks are selected for least-cost design, considering water pressures and the amount of water supplied on each consumption node under breakage level one, using the honey-bee mating optimization (HBMO) algorithm. In each state of design, a specific pressure is defined as the minimum expected pressure under

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