Topological clustering was explored as a tool for water supply utilities in preparation of monitoring and contamination contingency plans. A complex water distribution network model of Copenhagen, Denmark, was simplified by topological clustering into recognizable water movement patterns to: (1) identify steady clusters for a part of the network where an actual contamination has occurred; (2) analyze this event by the use of mesh diagrams; and (3) analyze the use of mesh diagrams as a decision support tool for planning water quality monitoring. Initially, the network model was divided into strongly and weakly connected clusters for selected time periods and mesh diagrams were used for analysing cluster connections in the Nørrebro district. Here, areas of particular interest for water quality monitoring were identified by including user-information about consumption rates and consumers particular sensitive towards water quality deterioration. The analysis revealed sampling locations within steady clusters, which increased samples' comparability over time. Furthermore, the method provided a simplified overview of water movement in complex distribution networks, and could assist identification of potential contamination and affected consumers in contamination cases. Although still in development, the method shows potential for assisting utilities during planning of monitoring programs and as decision support tool during emergency contingency situations.

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