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Risk assessment of water supply system safety based on WHO Water Safety Plan; Case study: Ardabil, Iran

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ABSTRACT

WHO has recommended a document for an assessment of water supply systems being titled as water safety plan (WSP). This research was conducted to assess and identify the vulnerable points in Ardabil water supply system based on WSP in 2014. Initial investigations were performed using WSP quality assurance (QA) tool. At first, WSP checklists were prepared and filled up by experts and data analysis using WSP QA tool. Then, system hazards were listed and prioritized according to WHO matrix by team member's scientific view and then risk analyses were prepared. Results showed that "System Description" and "Management Procedure" phases scored the highest and the lowest grades, respectively. Discharge of wastewater by communities in catchment area, trihalomethanes generation in finished water, old infrastructures, old pipes, and consequently pressure drop in point of use were identified as the most important hazardous events. With regard to the low level of overall implementation in WSP steps and lack of enough attention to water supply system in some phases, current control approach has no sufficient efficiency to provide safe drinking water. Collaboration and support of health authorities can lead to better performance and improvement of water safety in water supply system.

Keywords: Water safety plan; Ardabil city; Risk assessment

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