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EVALUATION ON THE RURAL DRINKING WATER QUALITY IN A CENTRALIZED SUPPLIED AREA OF CHINA

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Abstract

As a result of the rapid development of China's economy, many surface and groundwater have become polluted. Assuring high quality drinking water, especially for the rural areas has recently received much attention. In this study, the drinking water quality in one centralized water supply network was evaluated by analyzing 28 pollutant indices at 35 sampling points. It was determined that the concentrations of most organoleptic and physical indices were stable in all the water samples. The large variation of turbidity in the tap water was likely a result of the sloughing off of corrosion scales as well as bio-films formed within the distribution system. Trace metal elements also showed high removal efficiencies as a result of purification and pipe scale adsorption. The average concentrations of Fe and Mn in the tap water were 39.8 and 2.4 µg/L respectively, much lower than that in the untreated groundwater. Compared with organoleptic/physical indices and trace metal elements, the removal ratios of nitrate and microorganisms in purification were relatively low. Total bacteria counts could not meet the standard requirements in nearly all the tap water samples tested. To ensure future tap water quality, enhanced management in addition to upgrading the treatment process with a disinfection unit is suggested.

Key words: drinking water, rural area, trace metal element, water quality, water supply network

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