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Hydrochemistry as Indicator to Select the Suitable Locations for Water Storage in Tharthar Valley, Al-Jazira Area, Iraq

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ABSTRACT

Four locations were chosen according to geomorphologic and engineering criterion to store the water on the midstream of Tharthar valley, water samples were collected from the four locations to evaluate the hydrochemical properties as indicator to select the more suitable location, these locations are Hatra, Abu-Hamam, Tlol Al-Baj and Al-Sukkariah from the north to the south respectively. Also, the groundwater samples were collected from two shallow wells on the banks. The samples were analyzed to determine the concentrations of most common anions and cations in the water Ca^{2+}, Mg^{2+}, Na^{+}, K^{+}, CO_3^{2-}, HCO^{3-}, Cl^{-}, SO_4^{2+}. Also, pH, EC and TDS were measured. The results reflect high variations in concentrations of the soluble materials, the concentrations of these components are highly increased in locations of Tlol Al-Baj and Al-Sukkariah in comparison with the locations of Hatra and Abu-Hamam. The variation in geology of the area along the valley was represented a main role on the quality of water. These results can help to select the suitable locations of small dam (dams) to store the water in the valley and prevent the problem of salinity. According to the results, the northern part of midstream (north of Abu-Hamam) is suitable for water storage and the dam construction. While the locations of the downstream enriched by local sources of salts.

KEYWORDS

Tharthar; Dam; Hydrochemistry; Salinity

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