

HYDROCHEMICAL EVALUATION OF THE GROUNDWATER IN FATAH UMAR – HAZAR KANI AREA, NORTHEAST IRAQ

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Received: 18/ 8/ 2008, Accepted: 13/ 1/ 2009

ABSTRACT

Hydrochemical data are presented to describe the groundwater quality of Fatah Umer – Hazar Kani area, which is located between longitude E 44° 57' – 45° 12' and latitude N 34° 40' – 34° 57', about 100 Km southeast of Kirkuk city in northeast of Iraq. The present study revealed that the Bai Hassan Formation and Quaternary sediments are the main aquifer system, in the studied area, which supplies the region with water, whereas the Injana Formation is the second aquifer system. The hydrochemical properties of the groundwater show the dominance of Ca – HCO₃ type in the aquifer system. The chemical weathering of the rocks is the major mechanism that influences groundwater quality.

The EC values increase towards the central part of the studied area along the groundwater flow direction, because most of the low salinity waters enter the studied area from its northern parts and flows towards the central parts carrying dissolved ions. The low transmissivity of the beds and clogging nature of the sediments permit intermittent flushing and hence the dissolved ions sustain longer and reactions take place within the aquifers. The hydrochemical properties of the groundwater samples are compared with the world standards for drinking, irrigation and livestock, for evaluation purposes. All groundwater samples are suitable for drinking purpose, except the Tapa Sawz, Kanimaran and Simaq samples, because nitrate concentration exceeds the acceptable level and reached the polluted level. All samples are suitable for irrigation and livestock purposes.

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