The Effect of Irbid Treatment Plant Effluent on the Groundwater Quality in Wadi Al- Arab Catchment Area

By

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Abstract

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This thesis deals with the effect of Irbid Treatment Plant effluent on the groundwater quality in Wadi Al-Arab catchment area. The study area covers an area of about 267km^2, and lies between 208-230 East, and 210-230 North (Palestine Grid). The outcropping rocks in the area are sedimentary rocks of the Upper Cretaceous, Lower Tertiary and Recent deposits.

Water samples were collected from seven groundwater wells which represent the same geological aquifer in the study area, (Amman- Wadi Es-Sir Aquifer System), in order to classify the groundwater wells quality according to their chemistry. Furthermore, to study the quality of the wells water chemically, physically and bacteriologically. The results of the waters show that the chemical constituents and physical parameters of the studied wells are within the permissible limits according to WHO and Jordan Standards, and they are suitable for domestic and drinking water purposes.

According to Langguth classification, the wells water that issue from the same aquifer are classified into two types: Wadi Al- Arab wells and Dougara well are classified as alkaline earth waters with prevailing bicarbonate; Foa'ra well is classified as alkaline earth water, increasing portion of alkalies with prevailing bicarbonate.

According to the hardness, most of the wells water can be classified as very hard water, except Foa'ra well water which classified as hard water.

According to the U. S Salinity Laboratory Classification, based on salinity and SAR, the water of Wadi Al- Arab wells are classified as high salinity hazard and low sodium hazard (C_3-S_1), while Dougara well water and Foa'ra well water can be classified as medium salinity hazard and low sodium hazard (C_2-S_1).

The bacteriological analyses, indicate that all the studied wells are non polluted by total coliform and faecal coliform.