The Effect of Khirbet Es Samra Treatment Plant Effluent on the Groundwater Quality in the Area Between the Station and King Talal Dam

By

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ABSTRACT:

Amman-Zerqa Basin represents the important part of Jordan terrains, more than 60% of the Jordan population live in this area, that requires large quantities of water for consumption.

The study area lies within the most active area in Jordan (Amman-Zerqa Basin) and located according to Palestine Grid between coordinates 225-275 east and 160-185 north.

This study is thought to provide information and to investigate the existing source of pollution as well as the effect of Khirbet es Samra effluent on the groundwater quality.

To perform this study 31 Wells have been analysed for their chemical and physical parameter during the period dry season 1996 and wet season 1997, in addition to that bacteriological analyses were analysed in the course of this study on water samples from selected wells to investigate the present situation.

The development of the chemical composition of groundwater in the study area is a result of over exploitation and infiltration of polluted waters from Zerqa River and KS effluent.

This study show the increasing of the polluted parameters in the groundwater wells which located closely to Zerqa River and Khirbet es Samra effluent.

Furthermore to study the quality of groundwater wells chemically and bacteriologically, and according to their chemistry the water wells of the different aquifer are classified into three types. Alkaline earth waters increased portion of alkalies with prevailing chloride for dry season 1996 and wet season

The classification of groundwater wells based on the hardness show that, only two wells in wet season 1997 are classified as hard while the rest of the groundwater wells are classified as very hard.

The bacteriological analyses results, indicate that there is a tendency of wells for pollution by coliform and fecal coliform, in wells which are located closely to Zerqa River and Khirbet Es-Samra(KS) effluent.

Finally, and during this study, it seems that pollution of groundwater of the concerned area is an increasing and continuous processes.