

Simulation of artificial recharge effect on Kalachoo plain aquifer in Dehdasht

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Abstract

During recent years, high exploitation from the aquifer declines the quantity and quality of this water resource. In this regard, it seems that the hydrogeology cal management studies are needed for this aquifer. Hydro geological aspects of the Kalachoo plain are studied using the results of the pumping test, geological logs of the observation and exploration wells, and field observation. The unit hydrograph of the aquifer is drowning using the information of the 12 observation wells. Because of non suitable distribution of observation wells, central part of the plain is selected for model design. Then water level through October 2002 is selected for steady state condition in the aquifer at (2002-2004). Using the available data, needed packages by VISUAL MODFLOW 2.6 are completed and conceptual model is constructed. Then this conceptual model is calibrated, manually, for steady state condition while the considered parameters are hydraulic conductivity, inflow and outflow of margins as virtual wells. In order to optimize the value of specific yields and recharge parameters, calibration process is continued under unsteady state condition. Calibration period length is one year (October 2002 to October 2003). Model verification is performed for five years. Verification results indicate that the calibration model is capable for management practices. After the artificial recharge on the Tang-e-Hygoon and Tang-e-Sapoo in model, the result has been showed the positive effects on the recovery of ground water level in Kalacho plain.

Key words: ground water, observation wells, Tang-e-Hygoon, Tang-e-Sapoo.