River bank infiltration as a source of water supply in Felda Lepar Hilir, Pahang

Seet Chin Peng, Jabatan Penyiasatan Kajibumi Malaysia

*Felda Lepar Hilir was found to have a potential site for developing a*

*water supply scheme using river bank infiltrated water. This source of water would be free of suspended sediments, thus reducing the cost of water treatment. The amount of water required is 6800 cu m per day. It was decided to test a well field system using wells with single bore.*

*The site is covered by a sequence of unconsolidated sediments 7 m to 14 m thick and underlain by sedimentary rocks comprising sandstone and conglomerate. A sand and gravel aquifer was identified, which varies in thickness from 2 m to 9 m, but averaging 4 m.*

*A total of 8 wells were constructed. Pumping tests were carried out to determine the aquifer parameters, to ascertain that the wells are capable of producing the required amount of water and to determine to what extent the iron content of the groundwater can be reduced by bank infiltration. The pumping tests conducted consisted of a step-drawdown test for each completed well, a 72-hour constant discharge test on one of the wells and the simultaneous pumping of 3 wells for 288 hours.*

*Accurate determination of the aquifer parameters cannot be carried out due to the influence of the river, the large variation in aquifer thickness and its limited lateral extent. However a value of 250 m/day had been estimated for the hydraulic conductivity, giving a range of transmissivity values from 750 m/day.*

*The well field system has been shown to be more than capable of supplying the required amount of water throughout the season. On the present demand, only 6 out of the 8 wells need to be pumped for 15 hours at a total output of 455 cu m per hour. The remaining 2 wells can be used as 'stand-by' wells but they should be operated from time to time to maintain the pumps. If an increased demand is required, the number of hours of pumping can be extended or all the wells can be pumped.*

*The iron content of the groundwater can be reduced significantly by bank infiltration. When all the wells are being pumped simultaneously at high discharge rates for long duration, the iron content in all the wells should be reduced to a level comparative to that of the river water. Judging from the present data, the average iron content shouldbe in the region of 5 ppm. For this to occur, the amount of river recharge required is estimated to be twice that of the groundmwater.*

*****