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Bank Filtration System in Highly Mineralized Groundwater

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Abstract : Bank filtration (BF) being a natural method of abstracting surface water from the river or lake via sub-surface. It can be intensively used and operated under various operating conditions for sustainability. Field investigations were carried out at various location of Kokrajhar (Assam) and Srinagar (Uttarakhand) to assess the ground water and their bank filtration wells to compare and characterized the quality. Results obtained from the analysis of the data suggest that major water quality parameter were much below the drinking water standard of BIS 10500 (2012). However, the iron concentration was found to be more than permissible limit in more than 50% of the sampled hand pump; the concentration ranged between 0.33-3.50 mg/L with acidic in nature (5.4 to 7.4) in Kokrajhar and high nitrate in Srinagar. But the abstracted water from the RBF wells has attenuated water quality with no iron concentration in Kokrajhar. The aquifers and riverbed material collected along the bank of Rivers Gaurang and Alaknanda were sieved and classified as coarse silt to medium gravel. The hydraulic conductivity was estimated in the range 5×10^{-3} to 1.4×10^{-2}- 3.09×10^{-4}-1.29×10^{-3} for Kokrajhar and Srinagar respectively suggesting a good permeability of the aquifer. The maximum safe yield of the well was estimated to be in the range of 4000 to 7500 L/min. This paper aims at demonstrating bank filtration method as an alternative to mineralized groundwater for drinking water.

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