

An Experimental Study on Decreasing Groundwater Nitrate Pollution by Electric Fence Method

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The effect of electric fence method which is a type of electrokinetic remediation technique was studied in laboratory scale for nitrate groundwater pollution around rural area. In order to confirm the movement and accumulation of nitrate by electrophoretic under groundwater flowing condition, the relationships between applied voltage and the concentration of nitrate were studied in the model aquifer at 12 observation points. An electrical input over 5V increase nitrate content around anode and decrease it around cathode. Higher electrical voltage inputs yield greater concentration of nitrates around the anode. When electrobath was collected at 60V and at 1.0L/day in discharge, over 30% of nitrates in groundwater were collected through the electric fence. However, an electrical input reduces the pH near anode and increases it near cathode significantly. Reduction of the change of the pH around electrodes will be the following problem.