

## 石家庄地面水回渗地下过程的氮行为影响试验研究

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中文摘要:石家庄是我国北方地下水位下降较大的城市之一,利用其毗邻滹沱河宽阔河滩,地面水可直接入渗补给地下水的有利水文地质条件,实施地面水回渗地下工程,将具有现实意义.为探索地面水回渗后的水质变化,该文针对地面水在回渗过程中对水质起限制性影响的氮行为作用进行了模拟试验研究.结果显示,利用2 m厚的滹沱河细砂土及与粘土按一定比例的混合砂土层,可对间歇式实施地面水回渗中的铵氮组分形成一定容量的截留去除,并且该截留量又在随回渗次数的增加而缓慢下降,当采用人工增加环境碱度及湿度的办法后可消除这种下降.同时,还显示对回渗水中硝酸氮的去除率不高,但若采用人工添加乙醇碳源和接种优势脱氮微生物菌种方法,硝酸氮的去除率将会得到较大提高.

中文关键词:[地面水回渗](#) [氮行为影响](#) [去除率](#) [模拟试验](#)

## An Experimental Study of Nitrogen Behavior Effect in the Course of Groundwater Recharging with Surface Water

**Abstract:** Shijiazhuang is one of the cities in North China whose groundwater levels have declined terribly. The Hutuo River is near Shijiazhuang, and recharging groundwater through its wide riverside characterized by favorable hydrogeological conditions for groundwater recharging is very practical. However, the change of the groundwater quality after recharging is a problem which deserves detailed studies. In the course of recharging, it is very difficult to remove nitrogen, which restricts the removal of other wastes. The authors therefore experimented on the removal of nitrogen. In this experiment, silver sand on the Hutuo Riverside and silver sand mixed with a certain proportion of clay could remove a certain amount of ammonia-nitrogen, but the capability of sand for removing nitrogen decreased as the experiments went on. Adding alkalinity to the sand could solve the problem. At the same time, the effect of removing nitration-nitrogen was not remarkable. When a certain volume of ethanol and some bacteria of denitrification were added, the removal efficiency sharply rose.


**keywords:** [surface water infiltration](#) [nitrogen behavior effect](#) [removal efficiency](#) [simulative experiment](#)

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