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Xiang Li[1,2], Yan Yuan[1,2], Fan Wang[1,2], Yong Huang[1,2*], Qing-tan Qiu[3], Yuan Yi[1,2], Zhen Bi[1,2]

1. School of Environmental Science and Engineering, Suzhou University of Science and Technology, Suzhou 215009, China;

2. National and Local Joint Engineering Laboratory of Municipal Sewage Resource Utilization Technology, Suzhou 215009, China;

3. Qizi mountain sanitary landfill plant of Suzhou, Suzhou Environmental Sanitation Administration Agency, Suzhou 215009, China.

Abstract: An efficient and stable combined denitrification-partial nitrification-Anammox process with a dual recycling system was used to remove nitrogen from mature landfill leachate. After 155 d of operation, the NO_3^- as the PN-Anammox byproduct was almost treated with biodegradable organic carbon in raw wastewater in a pre-denitrification reactor by external recycling system. When raw landfill leachate with NH_4^+-N concentration of 1900 mg/L was treated, an integrated reactor with airlift recycling was combined with the PN and Anammox reactions to efficiently remove NH_4^+ from the inflow. The total nitrogen concentration of effluent stabilized at 20 mg/L and total nitrogen removal efficiency was 99%. The maximum NO_2^- production rate in the aerobic zone was 2.2 kg/(m^3·d) and the maximum nitrogen removal rate in the anaerobic zone was 21.4 kg/(m^3·d). The most common phyla among the nitrification and the

*Corresponding author: Tel./Fax: +86 51268786192. Email address: yhuang@mail.ustc.edu.cn (Y Huang)