Supplementary Material

Fig. S1 The software copyright certificate of PRB-Trans code.

Table S1 Characteristic parameters and their values of the two confined aquifer.

Aquifer	Aquifer characteristic	Values
Horizontal 2D	Computational zone, A_a	400 m×200 m
	Linear pollution source, L_s	40 m
	Hydraulic gradient, J	0.01
	Porosity, n_a	0.14
	Specific storage, Ss	7×10^{-5} m^{-1}
	Bulk density, ρ	1700 kg/m^3
	Hydraulic conductivity, Ka	K_x =K_y =1.0 m/d
	Longitudinal dispersivity, α_L	10
	Transverse dispersivity, α_T	1
	Molecular diffusion coefficient NH_4^+, D	8.64×10^{-4} m^2/d
Vertical 2D	Computational zone, A_a	400 m×50 m
	Linear pollution source, L_s	15 m
	Hydraulic gradient, J	0.01
	Porosity, n_a	0.14
	Specific storage, Ss	7×10^{-5} m^{-1}
	Bulk density, ρ	1700 kg/m^3
	Hydraulic conductivity, Ka	K_x =1.0 m/d, K_z =0.1 m/d
	Longitudinal dispersivity, α_L	10
	Vertical dispersivity, α_V	0.8
	Molecular diffusion coefficient NH_4^+, D	8.64×10^{-4} m^2/d

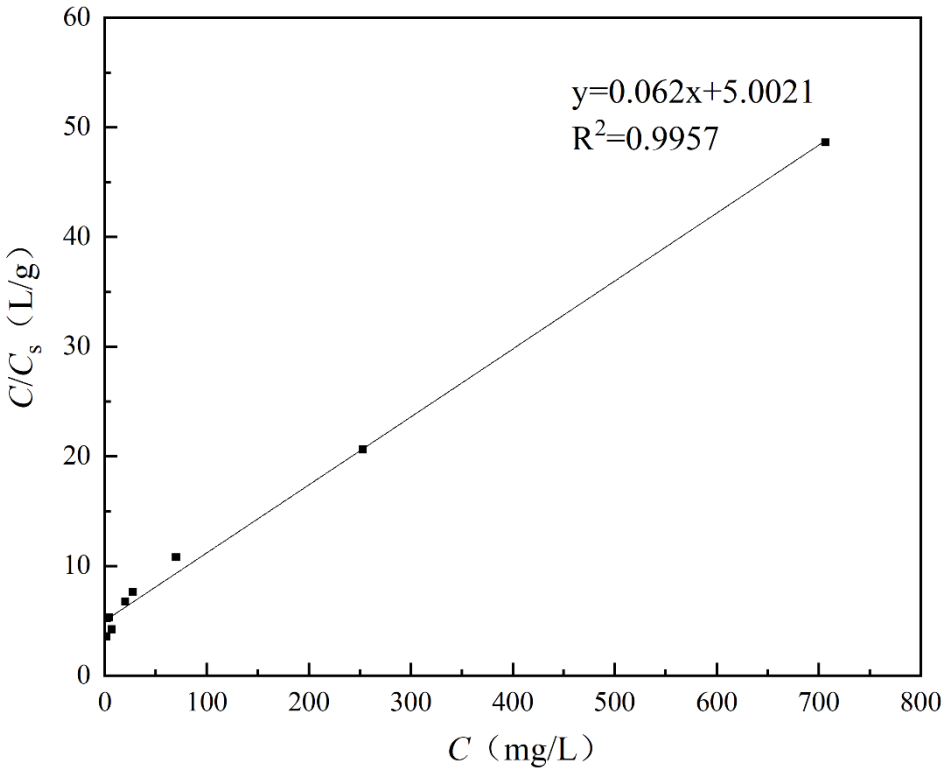

Fig. S2 Fitting Langmuir plot for ammonia nitrogen adsorption by zeolite.

Table S2 The hydraulic parameters and pertinent values of the PC-PRB.

Model Parameters				Values
PC system	Passive well	Hydraulic conductivity, K_w		$K_x = K_y = K_z$ =10000.0 m/d
		Effective porosity, n_w		1.0
	Water pipe	Pipe wall	Hydraulic conductivity, K_{pw}	0.0001 m/d
			Effective porosity, n_{pw}	0.01
		Inside the pipe	Hydraulic conductivity, K_{pi}	$K_x = K_y = K_z$ =10000.0 m/d
			Effective porosity, n_{pi}	1.0
	Buffer layer	Hydraulic conductivity, K_b		$K_x = K_y = K_z$ =10000.0 m/d
		Effective porosity, n_b		1.0
PRB system		Hydraulic conductivity, K_{PRB}		$K_x = K_y$ =10.0 m/d, K_z =1.0 m/d
		Effective Porosity n_r		0.3