

Supplementary Data

Impact of burial conditions on NO₃⁻-N source apportionment in groundwater:

Insights from PCA-APCS-MLR and MixSIAR methods

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Section S1. The results of the $\delta^{15}\text{N}$ and $\delta^{18}\text{O}$ values for the potential pollution sources.

Table S1 $\delta^{15}\text{N}$ values for the potential pollution sources.

Pollution sources	$\delta^{15}\text{N}$ (‰)		
	Minimum	Maximum	Mean $\pm$ sd
Atmospheric deposition	-3.9	-1.9	-2.9 $\pm$ 0.5
Soil nitrogen	-4.6	3.8	-0.9 $\pm$ 0.27
Chemical fertilizer	-2.51	3.36	-0.29 $\pm$ 0.09
Manure and sewage	-9.8	2.7	-2.4 $\pm$ 0.8

Table S2 $\delta^{18}\text{O}$ values for the potential pollution sources.

Pollution sources	$\delta^{18}\text{O}$ (‰)		
	Minimum	Maximum	Mean $\pm$ sd
Atmospheric deposition	68	70.6	69.3 $\pm$ 1.3
Soil nitrogen	-3.3	21.9	4.8 $\pm$ 0.84
Chemical fertilizer	2.71	3.12	2.85 $\pm$ 0.16
Manure and sewage	15.5	22.3	18.1 $\pm$ 2.1

Section S2. The fractionation coefficients for $\delta^{15}\text{N}$ and $\delta^{18}\text{O}$ of different pollution sources.

Table S3 The fractionation coefficients of different potential pollution sources.

Pollution sources (‰)	Atmospheric deposition	Soil nitrogen	Chemical fertilizer	Manure and sewage
Fractionation coefficients	0	-20.0 ± 2.7	-20.0 ± 2.7	16.8 ± 2.8