Hydrochemical heterogeneity shapes microbial community assembly in industrial groundwater: implications for sustainable aquifer management

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Table S1. Mantel tests of variations of environmental factors against MST.

States	Environmental factors	r	p_{raw}	p_{adj_FDR}
Group1	**Total**	**0.083**	**0.044**	**0.046**
	$\|\Delta NO_3^-\|$	-0.002	0.502	0.672
	|ΔGWL|	0.036	0.153	0.314
	|ΔDO|	**0.154**	**0.002**	**0.004**
	|ΔZD|	-0.076	0.956	0.964
Group2	**Total**	**0.104**	**0.029**	**0.029**
	$\|\Delta NH_4^+\|$	0.044	0.136	0.177
	$\|\Delta Cl^-\|$	**0.090**	**0.048**	0.098
Both groups	**Total**	**0.062**	**0.008**	**0.012**
	$\|\Delta NO_3^-\|$	**0.063**	**0.001**	**0.015**
	|ΔGWL|	0.006	0.353	0.460
	|ΔDOC|	-0.047	0.982	0.988
	|ΔTurbidity|	**0.064**	**0.008**	**0.030**
	|ΔTemperature|	0.015	0.223	0.325

Figure S1. Map of the sampling sites (n=31).

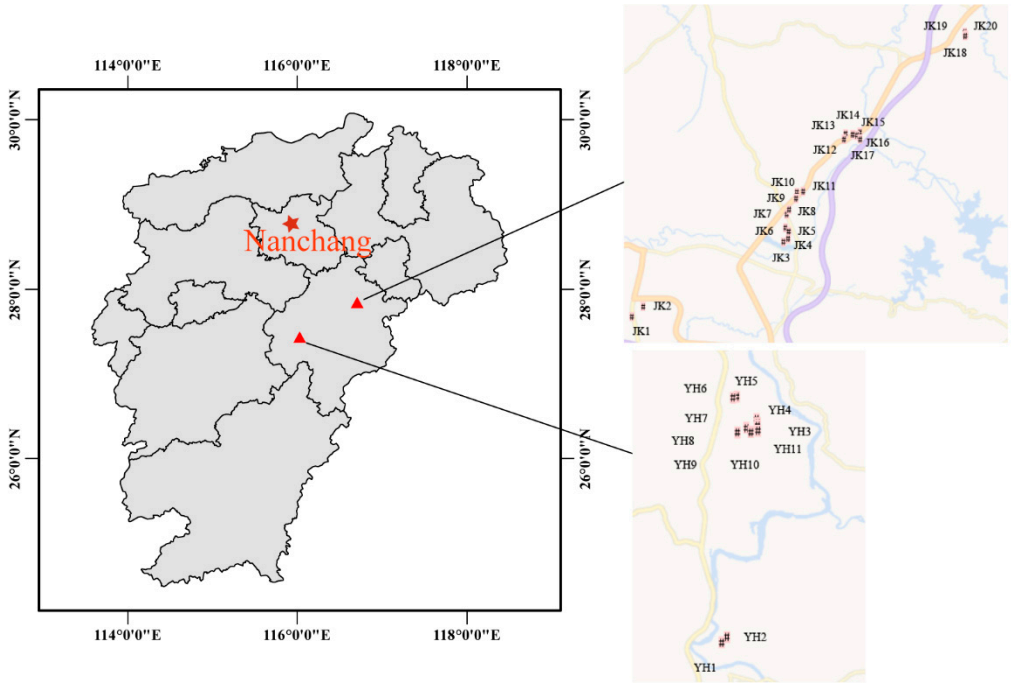

Figure S2. Taxonomic composition of bacterial communities at the phylum level in industrial groundwater samples.

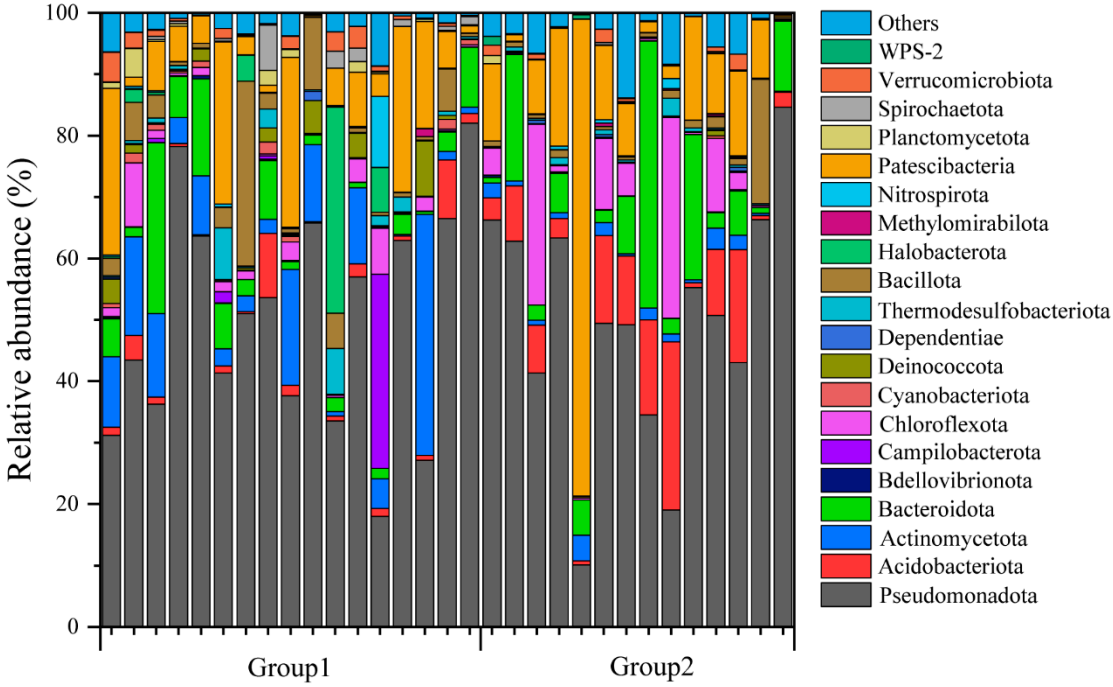

Figure S3. Determining the optimal number of clusters using silhouette coefficient.

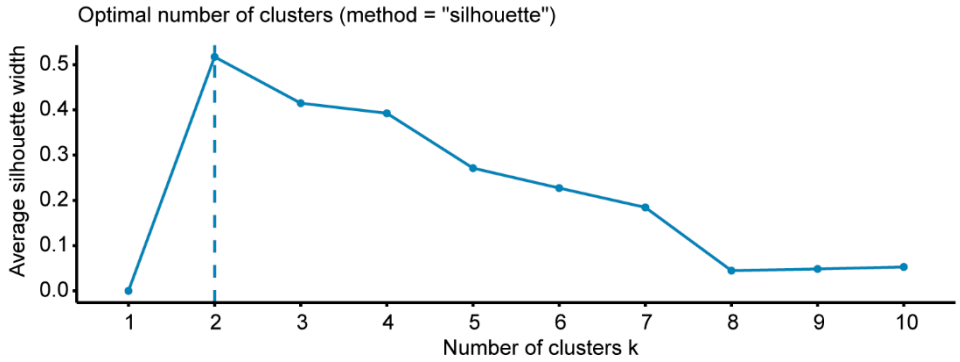

Figure S4. Comparison of environmental factors between two ecological states using the Mann-Whitney U test.

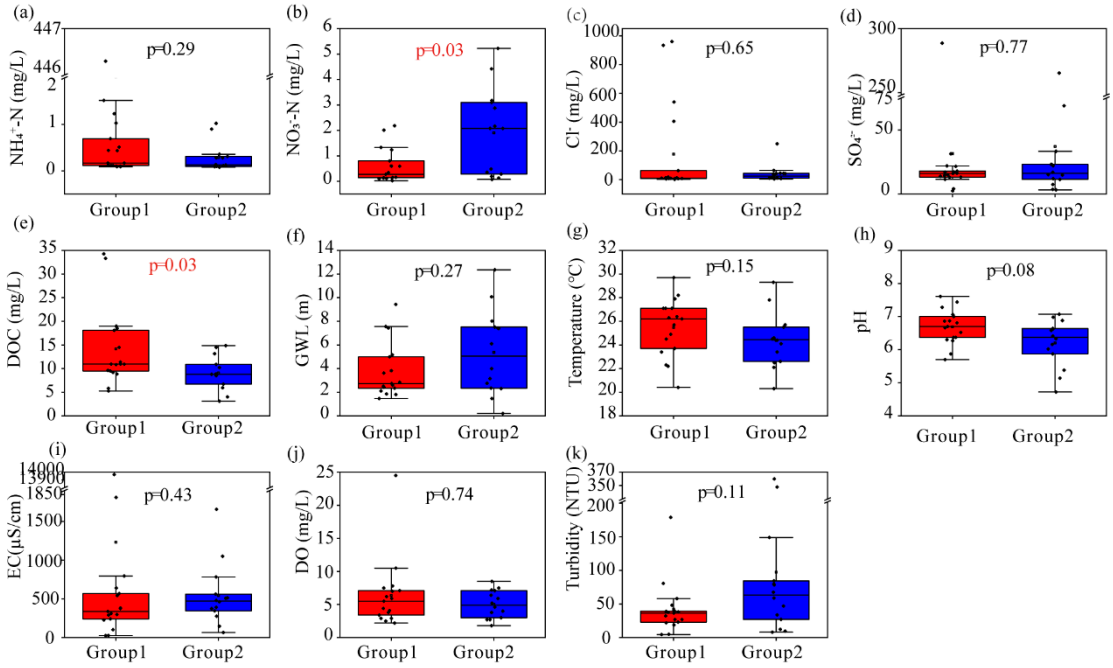

Figure S5. Correlation between biomarkers and functional guilds.

