

Supporting materials

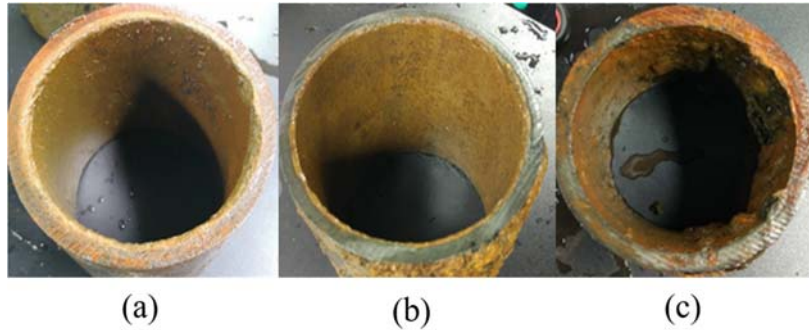


Fig. S1 Appearance of three pipe sections internal surfaces (a: pipe A; b: pipe B; c: pipe C)

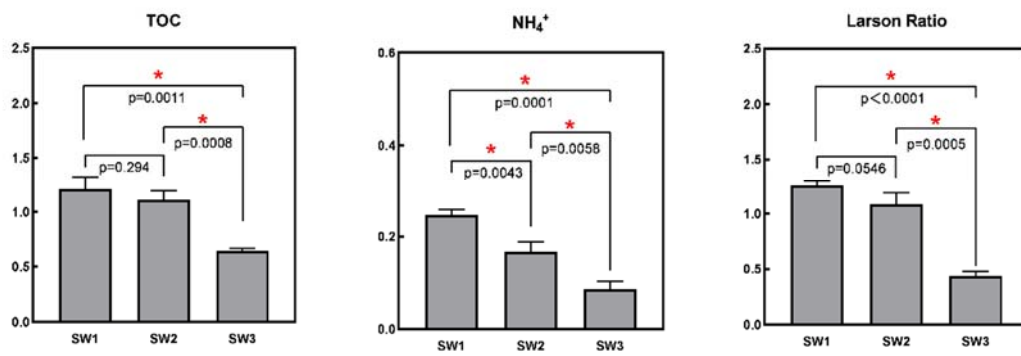


Fig. S2 Comparison of TOC, ammonia, Larson ratio between SW1, SW2 and SW3 (* indicated P -value < 0.05)

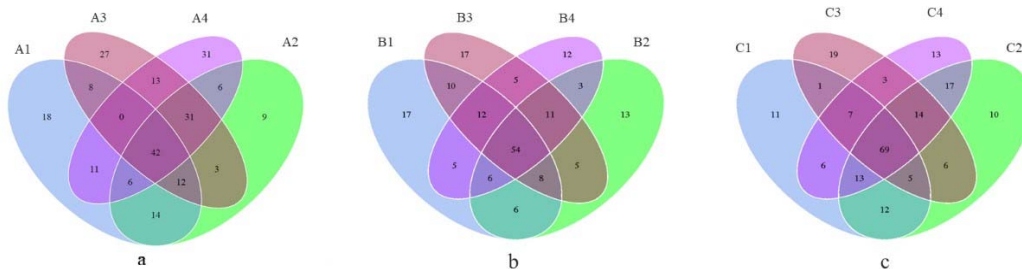


Fig. S3 Venn graph of different stages

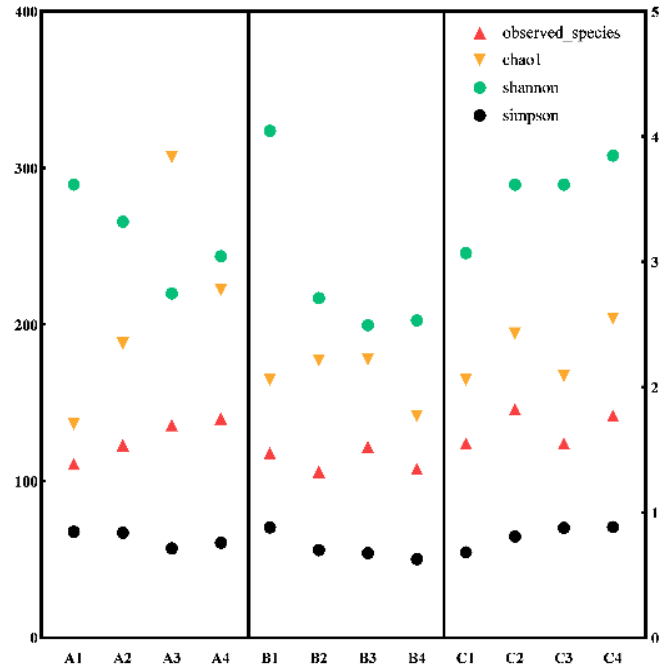


Fig. S4 Microbial diversity at different stages

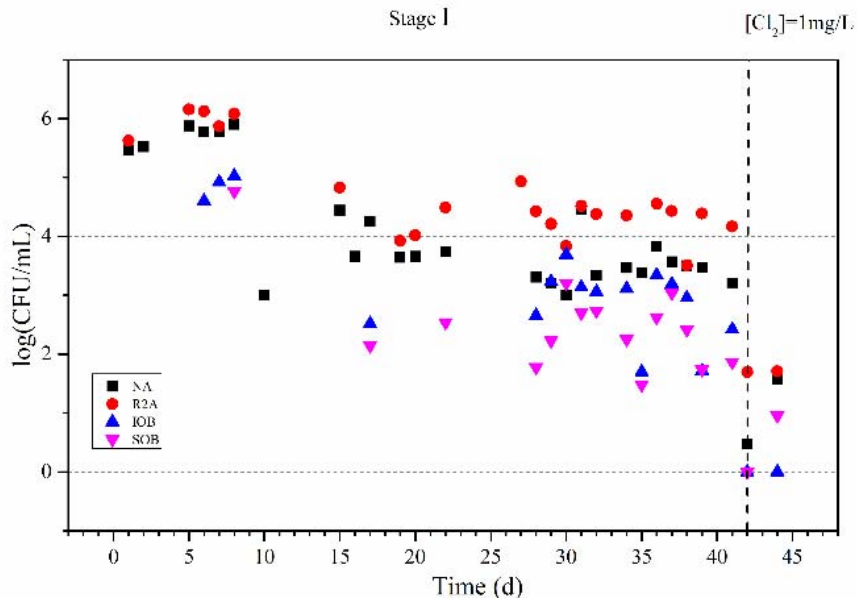


Fig. S5 Microbial data of pipe that run historical water source

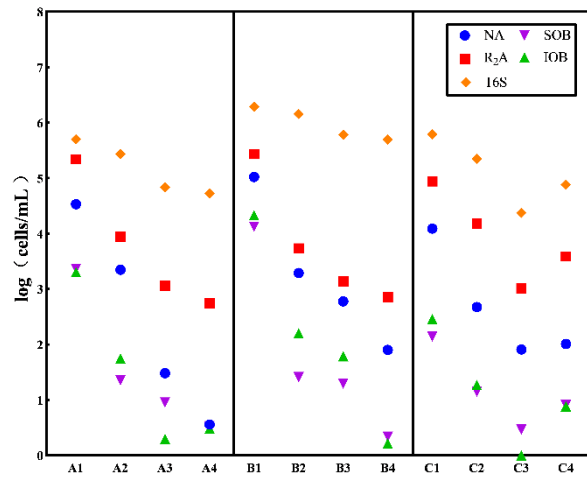


Fig. S6 Average number of bacteria at different stages

Table S1 Pipe section ID, historic source water and pipe diameter

Pipe ID	Material	Age (years)	Treatment plant	Historic source water	Pipe diameter (mm)
Pipe A	DCIP	15	DWTP1	SW1	100
Pipe B	DCIP	10–15	DWTP2	SW2	100
Pipe C	CIP	18	DWTP1	SW1	100

Table S2 Relative abundance of corrosion-related bacteria in genus level during water source switching

	Genera	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
SOB	<i>Sulfuricella</i>	–	–	–	–	–	–	–	–	0.09	0.04	0.01	0.01
	<i>Bacillus</i>	–	–	–	0.03	–	–	–	–	–	–	–	–
IRB	<i>Pseudomonas</i>	0.16	1.43	0.07	0.30	28.83	0.01	0.11	0.01	0.10	0.11	0.01	0.09
	<i>Geothrix</i>	–	–	–	–	–	–	–	–	0.05	0.10	0.04	0.03
	<i>Arthrobacter</i>	–	–	–	–	–	–	0.02	–	–	–	–	–
	<i>Acidovorax</i>	0.39	0.01	0.02	0.11	0.19	0.03	0.10	0.01	2.72	0.97	0.02	0.92
IOB	<i>Sediminibacterium</i>	0.12	0.07	0.01	0.04	0.01	0.01	0.03	0.04	0.38	0.15	0.04	0.08
	<i>Burkholderiaceae</i>	0.01	–	–	0.03	–	–	0.01	–	–	0.01	–	0.02
	<i>Aquabacterium</i>	5.98	0.21	0.06	0.10	13.20	0.72	0.31	0.10	3.12	1.65	0.08	1.00
	<i>Bradyrhizobium</i>	0.01	–	–	–	–	–	–	–	–	0.04	0.03	0.05
NRB	<i>Delftia</i>	2.70	0.04	0.02	0.04	2.99	0.15	0.05	0.02	0.02	0.10	0.02	0.04
	<i>Hyphomicrobium</i>	–	0.06	0.10	1.09	0.01	0.07	0.12	2.44	0.01	0.49	4.39	5.73
	<i>Sphingomonas</i>	1.24	51.46	39.35	5.41	11.78	11.53	17.37	13.35	3.51	5.14	49.25	12.85