

## Supplementary Information

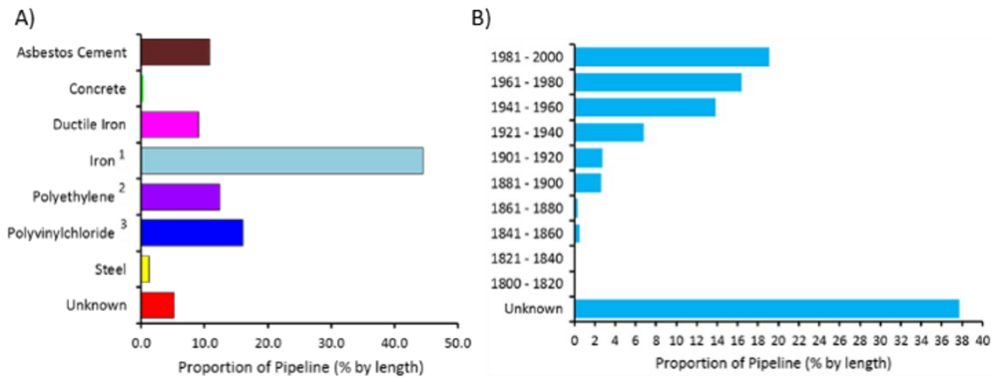
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3 **Table S 1 Examples of drinking water quality guidelines relating to microbial growth/regrowth,**  
 4 **as stated by various governing bodies** data collated from 15,14,151–153.

Parameter	WHO Guidelines, 3 <sup>rd</sup> & 4 <sup>th</sup> <sup>rd</sup> Editions, (2004 & 2011)	EC Directive, 1998	U.K. Water Supply	US EPA Regulations under Safe Drinking Water Act 1996.
Arsenic (As)	0.010 mg l <sup>-1</sup>	0.005 mg l <sup>-1</sup>	0.005 mg l <sup>-1</sup>	0.006 mg l <sup>-1</sup>
Ammonium (NH <sub>4</sub> )	-	0.50 mg l <sup>-1</sup>	0.50 mg l <sup>-1</sup>	-
Chloramines (NH <sub>2</sub> Cl, NHCl <sub>2</sub> )	(max) 3 mg l <sup>-1</sup>	-	-	4 mg l <sup>-1</sup> <sup>D</sup>
Chlorate (ClO <sub>3</sub> )	0.7 mg l <sup>-1</sup>	-	0.7 mg l <sup>-1</sup>	- <sup>D</sup>
Chlorine (Cl <sub>2</sub> )	(max) 5 mg l <sup>-1</sup>	-	“detectable”	“detectable” - 4 mg l <sup>-1</sup>
Copper (Cu)	2 mg l <sup>-1</sup>	2 mg l <sup>-1</sup>	2 mg l <sup>-1</sup>	1.3 mg l <sup>-1</sup>
Fluoride (F)	1.5 mg l <sup>-1</sup>	1.5 mg l <sup>-1</sup>	1.5 mg l <sup>-1</sup>	4 mg l <sup>-1</sup>
Iron (Fe)	0.3 mg l <sup>-1</sup>	200 µg l <sup>-1</sup>	200 µg l <sup>-1</sup>	0.3 mg l <sup>-1</sup> <sup>E</sup>
Lead (Pb)	0.010 mg l <sup>-1</sup>	0.010 mg l <sup>-1</sup>	0.025 mg l <sup>-1</sup> <sup>C</sup>	0.015 mg l <sup>-1</sup>
Manganese (Mn)	0.4 mg l <sup>-1</sup>	50 µg l <sup>-1</sup>	50 µg l <sup>-1</sup>	0.05 mg l <sup>-1</sup> <sup>E</sup>
Nitrate	50 mg l <sup>-1</sup> as NO <sub>3</sub>	50 mg l <sup>-1</sup> as NO <sub>3</sub>	50 mg l <sup>-1</sup> as NO <sub>3</sub>	10 mg l <sup>-1</sup> as N
Nitrite	3 mg l <sup>-1</sup> as NO <sub>2</sub>	0.5 mg l <sup>-1</sup> as NO <sub>2</sub>	0.5 mg l <sup>-1</sup> as NO <sub>2</sub>	1 mg l <sup>-1</sup> as N
pH	-	≥6.5 and ≤9.5	6.5-9.5	6.5-8.5
Sodium (Na)	200 mg l <sup>-1</sup>	200 mg l <sup>-1</sup>	200 mg l <sup>-1</sup>	-
Sulphate	250 mg l <sup>-1</sup>	250 mg l <sup>-1</sup>	250 mg l <sup>-1</sup>	250 mg l <sup>-1</sup> <sup>E</sup>
Total Organic Carbon (TOC)	-	No abnormal change	No abnormal change	Varies with treatment technique
Turbidity	5 NTU	1-4 NTU	1-4 NTU	5 NTU
Colonies ml <sup>-1</sup> at 22 <sup>o</sup> C <sup>A</sup>	-	No abnormal change <sup>B</sup>	No abnormal change <sup>B</sup>	Requirement for surface water <500 colonies ml <sup>-1</sup>
Colonies ml <sup>-1</sup> at 37 <sup>o</sup> C <sup>A</sup>	-	-	No abnormal change <sup>B</sup>	
Total coliforms <sup>A</sup>	-	0/100 ml	0/100 ml <sup>C</sup>	Requirement for surface water, max contaminant level (MCL) <5%
<i>Escherichia coli</i> <sup>A</sup>	0/100 ml	0/100 ml	0/100 ml	

5 <sup>A</sup> WHO and U.K. microbial guidelines are for water entering, within and leaving the DWDS, EC guidelines are for endpoint  
 6 water (i.e. water emerging from taps), US EPA regulations are for sites along the DWDS; <sup>B</sup> Indicator parameter; <sup>C</sup> 95% of  
 7 the last 50 samples taken must meet the standard; <sup>D</sup> Usually present as a disinfection by product (DBP), therefore  
 8 encompassed by the DBP rule in the US; <sup>E</sup> On the US EPA list of national secondary drinking water regulations, these are  
 9 recommendations, they are not binding.



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11 **Figure S 1 Diversity of ages and materials of pipelines within DWDS.** A) Materials comprising the  
 12 pipelines, <sup>1</sup>Includes cast, galvanised, spun and grey, <sup>2</sup>Polyethylene and <sup>3</sup>Polyvinylchloride contain  
 13 various sub groups, copper, glass reinforced plastic and lead are not shown as they accounted for  
 14  $\leq 0.089\%$  and thus no data points were visible due to the x-axis scale; B) Dates (in years) between  
 15 which pipeline was laid. All data plotted is taken from UKWIR <sup>5</sup> and is therefore based upon U.K.  
 16 systems.