COMMENTARY ON WATER QUALITY

The water supplied to the zone is classified as being moderately soft water, which is river/reservoir derived. As we have a grid system in place whereby we can move water around the Yorkshire region as required, occasionally the hardness of your water may vary.

No fluoride is added to the water. Any fluoride that is there is naturally occurring.

Samples taken in the period showed that the water complied in all respects with the prescribed standards.

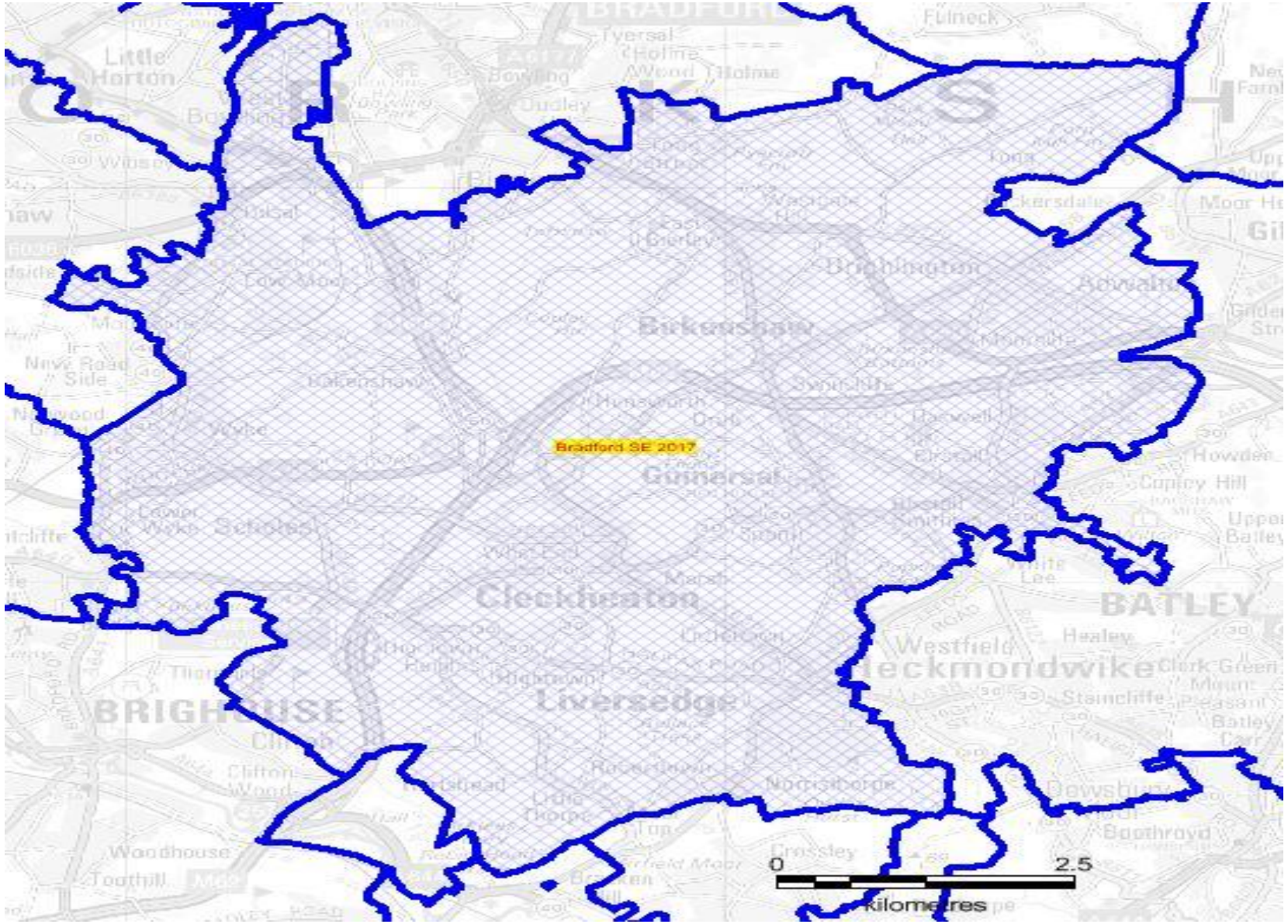
DETAILS OF UNDERTAKINGS AND NOTICES APPLICABLE

1) Undertaking YKS 2773 in respect of **Colour** and **Total Trihalomethanes** due to these parameters exceeding or at risk of exceeding the prescribed concentrations in the zone because of the increasing levels of naturally occurring colour in the raw water supplying Chellow Heights water treatment works. Appropriate catchment measures to be implemented by 31 March 2014.

Progress to date with work required

1) Scheme completed and monitoring continuing to demonstrate compliance.

The geographical area covered by this Water Supply Zone is show below:



Yorkshire Water Services **Reporting Period: 01-01-2018 to 31-12-2018**

Water Supply Zone: Bradford SE 2017 **Population 99820**

ParameterName:	Std	Und Std	Units	No of Samples taken	No of Fails	% Fails	No of Fails (Und)	% Fails (Und)	Min	Mean	Max
Colony Counts After 3 Days At 22øc	-		no'/ml	76	0	0.00%	0	0.00%	0	0.1	6
E. coli	0		no'/100 ml	240	0	0.00%	0	0.00%	0	0	0
Enterococci	0		no'/100 ml	8	0	0.00%	0	0.00%	0	0	0
Residual Disinfectant - Free	-		mg/l	241	0	0.00%	0	0.00%	0.05	0.37	0.89
Residual Disinfectant - Total	-		mg/l	241	0	0.00%	0	0.00%	0.12	0.48	0.97
Total coliforms(Indicator)	0		no'/100 ml	240	0	0.00%	0	0.00%	0	0	0
1,2 Dichloroethane	3		µg/l	9	0	0.00%	0	0.00% <	0.07 <	0.1 <	0.07
Aluminium	200		µg Al/l	76	0	0.00%	0	0.00% <	3.21 <	22.113	109
Ammonium(ammonia and ammonium ions)	0.5		mg NH4/l	76	0	0.00%	0	0.00% <	0.004 <	0.0044	0.021
Antimony	5		µg Sb/l	8	0	0.00%	0	0.00% <	0.09 <	0.1369	0.25
Arsenic	10		µg As/l	8	0	0.00%	0	0.00%	0.12	0.1512	0.19
Benzene	1		µg/l	9	0	0.00%	0	0.00% <	0.02 <	0.02 <	0.02
Benzo 3,4 pyrene	0.01		ug/l	8	0	0.00%	0	0.00% <	0.00022 <	0.0002 <	0.00022
Boron	1		mg B/l	24	0	0.00%	0	0.00% <	0.0052 <	0.0119	0.0227
Bromate	10		µg BrO3/l	8	0	0.00%	0	0.00% <	0.1 <	0.25	0.6
Cadmium	5		µg Cd/l	8	0	0.00%	0	0.00%	0.014	0.0255	0.04
Chloride	250		mg Cl/l	24	0	0.00%	0	0.00%	8	9.6875	12
Chromium	50		µg Cr/l	8	0	0.00%	0	0.00%	0.07	0.315	0.47
Colour	20		mg/l Pt/Co scale	76	0	0.00%	0	0.00% <	1 <	1.2	2.7
Conductivity	2500		µS/cm	76	0	0.00%	0	0.00%	139	186.59	382
Copper	2		mg Cu/l	8	0	0.00%	0	0.00%	0.0023	0.0126	0.0309
Cyanide	50		µg CN/l	24	0	0.00%	0	0.00% <	0.7 <	0.73	1.4
Fluoride	1.5		mg F/l	24	0	0.00%	0	0.00%	0.04	0.049	0.08
Hydrogen Ion (pH)	6.5 - 9.5		pH value	76	0	0.00%	0	0.00%	7.06	7.5	7.95
Iron	200		µg Fe/l	76	0	0.00%	0	0.00% <	0.7 <	6.45	167
Lead	10		µg/l	8	0	0.00%	0	0.00%	0.03	0.569	3.81
Manganese	50		µg Mn/l	76	0	0.00%	0	0.00% <	0.14 <	0.4	8.43
Mercury	1		µg Hg/l	24	0	0.00%	0	0.00% <	0.02 <	0.03 <	0.05
Nickel	20		µg Ni/l	8	0	0.00%	0	0.00%	0.58	1.466	5.13
Nitrate	50		mg NO3/l	8	0	0.00%	0	0.00%	1.11	2.1188	4.98
Nitrite - Consumer's Taps	0.5		mg/l NO2	8	0	0.00%	0	0.00% <	0.002 <	0.002 <	0.002
Nitrite/ Nitrate formula	1		mg/l	8	0	0.00%	0	0.00% <	0.37 <	0.37 <	0.37

ParameterName:	Std	Und Std	Units	No of Samples taken	No of Fails	% Fails	No of Fails (Und)	% Fails (Und)	Min	Mean	Max
Odour	0		dilution number	76	0	0.00%	0	0.00%	0	0	0
Polycyclic Aromatic Hydrocarbons (PAHs)	0.1		µg/l	8	0	0.00%	0	0.00%	0	0	0
Selenium	10		µg Se/l	8	0	0.00%	0	0.00% <	0.16 <	0.197 <	0.31
Sodium	200		mg Na/l	8	0	0.00%	0	0.00%	6.13	6.98	7.49
Sulphate	250		mg SO4/l	8	0	0.00%	0	0.00%	28.8	39.1375	57.3
Taste	0		dilution number	76	0	0.00%	0	0.00%	0	0	0
Tetrachloroethene/Trichlorethene - Sum	10		µg/l	8	0	0.00%	0	0.00%	0	0	0
Tetrachloromethane	3		µg/l	8	0	0.00%	0	0.00% <	0.02 <	0.02 <	0.02
Total organic carbon	-		mg C/l	24	0	0.00%	0	0.00%	1.4	1.792	2.5
Total Trihalomethanes (THM's)	100		µg/l	9	0	0.00%	0	0.00%	28.45	43.2511	62.08
Turbidity	4		NTU	76	0	0.00%	0	0.00%	0.08	0.148	0.39
Calcium	-		mg Ca/l	8	0	0.00%	0	0.00%	22.5	31.1	44.7
Magnesium	-		mg Mg/l	8	0	0.00%	0	0.00%	1.53	1.9675	2.32
Total Hardness	-		mg Ca/l	8	0	0.00%	0	0.00%	25.1	34.35	48.5
2,4,5-T	0.1		µg/l	24	0	0.00%	0	0.00% <	0.004 <	0.0047 <	0.005
2,4-D	0.1		µg/l	24	0	0.00%	0	0.00% <	0.003 <	0.0033 <	0.004
2,4-DB	0.1		µg/l	24	0	0.00%	0	0.00% <	0.004 <	0.0053 <	0.006
Aldrin	0.03		µg/l	24	0	0.00%	0	0.00% <	0.003 <	0.003 <	0.003
Atrazine	0.1		µg/l	24	0	0.00%	0	0.00% <	0.001 <	0.0015 <	0.002
Bentazone	0.1		µg/l	24	0	0.00%	0	0.00% <	0.001 <	0.0017 <	0.002
Bromacil	0.1		µg/l	24	0	0.00%	0	0.00% <	0.003 <	0.003 <	0.003
Bromoxynil	0.1		µg/l	24	0	0.00%	0	0.00% <	0.003 <	0.003 <	0.003
Carbetamide	0.1		µg/l	24	0	0.00%	0	0.00% <	0.002 <	0.002 <	0.002
Chlorpropham	0.1		µg/l	24	0	0.00%	0	0.00% <	0.003 <	0.003 <	0.003
Chlorpyrifos	0.1		µg/l	24	0	0.00%	0	0.00% <	0.002 <	0.0028 <	0.003
Chlortoluron	0.1		µg/l	24	0	0.00%	0	0.00% <	0.002 <	0.0023 <	0.003
Clomazone	0.1		µg/l	24	0	0.00%	0	0.00% <	0.002 <	0.0025 <	0.003
Clopyralid	0.1		µg/l	24	0	0.00%	0	0.00% <	0.003 <	0.0052	0.023
Cyanazine	0.1		µg/l	24	0	0.00%	0	0.00% <	0.001 <	0.0017 <	0.002
Cypermethrin	0.1		µg/l	24	0	0.00%	0	0.00% <	0.002 <	0.0027 <	0.003
Cyproconazole	0.1		µg/l	24	0	0.00%	0	0.00% <	0.001 <	0.0018 <	0.002
Diazinon	0.1		µg/l	24	0	0.00%	0	0.00% <	0.001 <	0.0026 <	0.003
Dicamba	0.1		µg/l	24	0	0.00%	0	0.00% <	0.003 <	0.0037 <	0.004

Water Supply Zone: Bradford SE 2017 **Population 99820**

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Dichlobenil	0.1		µg/l	24	0	0.00%	0	0.00%	< 0.001	< 0.0025	0.003
Dichlorprop	0.1		µg/l	24	0	0.00%	0	0.00%	< 0.004	< 0.0047	0.005
Dieldrin	0.03		µg/l	24	0	0.00%	0	0.00%	< 0.002	< 0.0023	0.003
Difenconazole	0.1		µg/l	24	0	0.00%	0	0.00%	< 0.002	< 0.002	0.002
Diflufenican	0.1		µg/l	24	0	0.00%	0	0.00%	< 0.002	< 0.0036	0.004
Diuron	0.1		µg/l	24	0	0.00%	0	0.00%	< 0.002	< 0.0028	0.003
Epoxiconazole	0.1		µg/l	24	0	0.00%	0	0.00%	< 0.001	< 0.0018	0.002
EPTC	0.1		µg/l	24	0	0.00%	0	0.00%	< 0.003	< 0.0049	0.006
Flufenacet	0.1		µg/l	24	0	0.00%	0	0.00%	< 0.002	< 0.0023	0.003
Fluroxypyr	0.1		µg/l	24	0	0.00%	0	0.00%	< 0.003	0.0033	0.006
Flurtamone	0.1		µg/l	24	0	0.00%	0	0.00%	< 0.001	< 0.0018	0.002
Flusilazole	0.1		µg/l	24	0	0.00%	0	0.00%	< 0.001	< 0.0018	0.002
Flutriafol	0.1		µg/l	24	0	0.00%	0	0.00%	< 0.001	< 0.0018	0.002
Gamma-HCH (Lindane)	0.1		µg/l	24	0	0.00%	0	0.00%	< 0.001	< 0.0024	0.003
Heptachlor	0.03		µg/l	24	0	0.00%	0	0.00%	< 0.002	< 0.002	0.002
Heptachlor epoxide	0.03		µg/l	24	0	0.00%	0	0.00%	< 0.002	< 0.0022	0.003
Imazapyr	0.1		µg/l	24	0	0.00%	0	0.00%	< 0.002	< 0.0027	0.003
Ioxynil	0.1		µg/l	24	0	0.00%	0	0.00%	< 0.003	< 0.003	0.003
Isoproturon	0.1		µg/l	24	0	0.00%	0	0.00%	< 0.002	< 0.002	0.002
Linuron	0.1		µg/l	24	0	0.00%	0	0.00%	< 0.002	< 0.0038	0.007
MCPA	0.1		µg/l	24	0	0.00%	0	0.00%	< 0.003	0.0042	0.01
Mecoprop-P	0.1		µg/l	24	0	0.00%	0	0.00%	< 0.002	< 0.0027	0.003
Metaldehyde	0.1		µg/l	24	0	0.00%	0	0.00%	< 0.003	0.0068	0.021
Metazachlor	0.1		µg/l	24	0	0.00%	0	0.00%	< 0.002	< 0.002	0.002
Monuron	0.1		µg/l	24	0	0.00%	0	0.00%	< 0.002	< 0.002	0.002
op'-DDD (TDE)	0.1		µg/l	24	0	0.00%	0	0.00%	< 0.002	< 0.0027	0.003
op'-DDE	0.1		µg/l	24	0	0.00%	0	0.00%	< 0.002	< 0.0028	0.003
op'-DDT	0.1		µg/l	24	0	0.00%	0	0.00%	< 0.002	< 0.0028	0.003
Oxadixyl	0.1		µg/l	24	0	0.00%	0	0.00%	< 0.003	< 0.0034	0.005
Pendimethalin	0.1		µg/l	24	0	0.00%	0	0.00%	< 0.002	0.0023	0.003
Pesticides - Total Substances	0.5		µg/l	24	0	0.00%	0	0.00%	0	0.0096	0.033
pp'-DDD (TDE)	0.1		µg/l	24	0	0.00%	0	0.00%	< 0.002	< 0.0027	0.003
pp'-DDE	0.1		µg/l	24	0	0.00%	0	0.00%	< 0.001	< 0.0025	0.003
pp'-DDT	0.1		µg/l	24	0	0.00%	0	0.00%	< 0.002	< 0.0028	0.003

Yorkshire Water Services **Reporting Period: 01-01-2018 to 31-12-2018**

Water Supply Zone: Bradford SE 2017 **Population 99820**

ParameterName:	Std	Und Std	Units	No of Samples taken	No of Fails	% Fails	No of Fails (Und)	% Fails (Und)	Min	Mean	Max
Propachlor	0.1		µg/l	24	0	0.00%	0	0.00%	< 0.001	< 0.0018	0.002
Propham	0.1		µg/l	24	0	0.00%	0	0.00%	< 0.002	< 0.0026	0.003
Propiconazole	0.1		µg/l	24	0	0.00%	0	0.00%	< 0.002	< 0.0023	0.003
Propyzamide	0.1		µg/l	24	0	0.00%	0	0.00%	< 0.002	< 0.0028	0.005
Prosulfocarb	0.1		µg/l	24	0	0.00%	0	0.00%	< 0.002	< 0.002	0.002
Quinmerac	0.1		µg/l	24	0	0.00%	0	0.00%	< 0.001	< 0.0018	0.002
Simazine	0.1		µg/l	24	0	0.00%	0	0.00%	< 0.001	< 0.0023	0.003
Tri-allate	0.1		µg/l	24	0	0.00%	0	0.00%	< 0.002	< 0.0028	0.003
Trichlopyr	0.1		µg/l	24	0	0.00%	0	0.00%	< 0.003	0.007	0.009
Trietazine	0.1		µg/l	24	0	0.00%	0	0.00%	< 0.001	< 0.0023	0.003

Notes:

1) Qualified values are taken at face value in all