



Water Quality 2017

Annual report on the quality of our drinking water

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Quality

Welcome to our 2017 water quality report.

As your local water company, we are committed to supplying high quality drinking water 24 hours a day, 365 days a year and providing an excellent service to our customers. Our treatment facilities use the latest technology and sophisticated monitoring systems to ensure we continually produce water of a high standard when you turn on your tap.

Our dedicated operations staff and water quality experts work around the clock to ensure that the water is safe to drink. We sample and analyse the water we supply at all stages of the process to make sure that it meets stringent quality standards.

I am pleased to report that our compliance with the relevant water quality standards in 2017 remained high.

If you have any queries about your water quality please visit our website at www.affinitywater.co.uk or contact us on **0345 357 2407**.



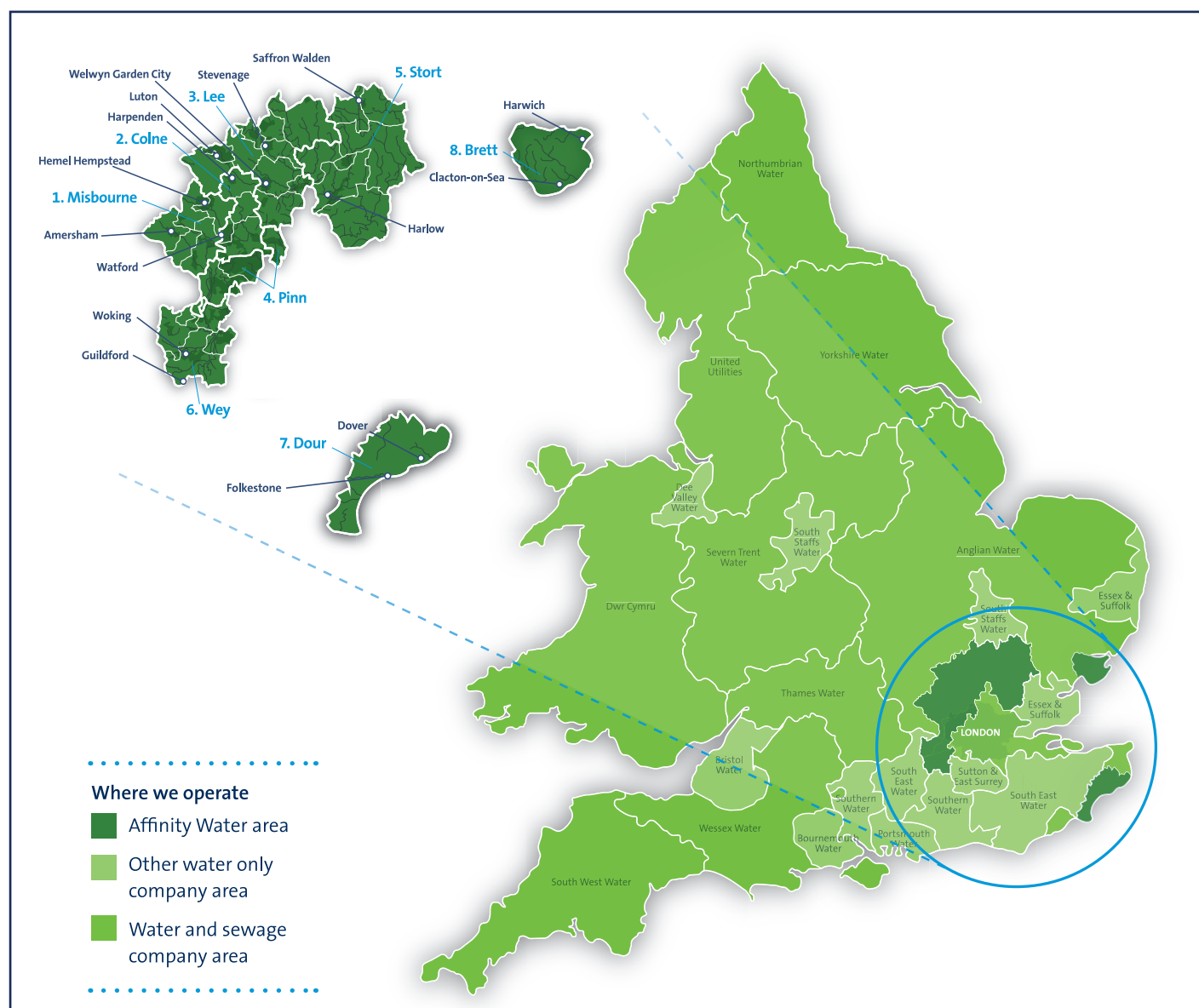
Fiona Waller

Head of Water Quality Services
Affinity Water

Affinity Water

In 2017, we supplied a daily average of 929 million litres to around 3.7 million people covering parts of Bedfordshire, Essex, Hertfordshire, Surrey and the London Boroughs of Barnet, Brent, Ealing, Enfield, Haringey, Harrow, Hillingdon and Hounslow.

We also supply water to the Tendring Peninsula in Essex and the Folkestone and Dover areas of Kent.



Our Water Supply

Where does your water come from?

Just over 60% of the water we supply comes from deep chalk boreholes which produce naturally hard water. Approximately 30% comes from the River Thames via one of our four treatment works and the remaining 7% from the water treatment works at Grafham and Ardleigh which are operated by Anglian Water.

Treatment in 2017

We operated 95 water treatment works across our area to meet our customers' demand for drinking water.

We use a range of treatment processes tailored to the individual raw water to ensure that the water we supply is always safe to drink.

All supplies are disinfected, either by the addition of chlorine or by ultra-violet (UV) radiation, making our water free from harmful bacteria.

The water from the River Thames and some of the boreholes in the Hatfield area can be naturally coloured. So that our water has a clear appearance, we treat it using coagulation, clarification and filtration.

Where there are pesticides in the raw water, these are removed using Granular Activated Carbon (GAC), and sometimes ozone.

We operate six membrane filtration plants across our area which ensure the water does not contain potentially harmful micro-organisms.

Iron and manganese removal processes are in place at four treatment works that receive water with naturally high levels of iron and manganese.

Air-stripping or GAC is also used at five sites to remove volatile organic compounds.

We have plumbosolvency control treatment in place at 39 sites to reduce the amount of lead that may dissolve into drinking water from customers' lead pipes. This treatment works by forming a protective layer on the inside of any lead pipes.

We often receive enquiries asking whether our drinking water is fluoridated – we do not add fluoride to any of our supplies, although some sources contain a very small amount of naturally occurring fluoride. You can quickly



check the level in your water by visiting our website at www.affinitywater.co.uk

Distribution

Once water is treated, it passes directly into supply or to one of our 156 storage installations. We then distribute it to our customers through a complex network of over 16,500 km of water mains.

We take great care to maintain and operate the pipes and storage systems to ensure water arrives at our customers' properties in the same high quality condition as it leaves our water treatment works.

Water entering the distribution network contains a residual amount of chlorine to ensure the quality of water is maintained throughout the system.





Drinking Water Safety Plans (DWSPs)

In 2007, The Water Supply (Water Quality) Regulations 2000 were amended. One of the amendments was to include a requirement for water companies to produce a risk assessment for each of its treatment works and associated supply systems. These risk assessments are commonly known as Drinking Water Safety Plans (DWSPs). The objective of producing the plans is to identify, assess and mitigate all the risks associated with the treatment works and their supply systems so that drinking water quality is safeguarded.

In 2014, the Drinking Water Inspectorate introduced a new reporting framework for DWSPs. Since 2014 we have developed our DWSP methodology and updated our DWSPs so that they comply with the new reporting framework.

The Water Quality Standards

All drinking water we supply must be wholesome and comply with the standards set in the Water Supply (Water Quality) Regulations 2016. These regulations incorporate the European Community (EC) Drinking Water Directive (98/83/EC) into British law.

The standards against which all results were compared are listed and explained in Appendix 1. They apply to a variety of measurements which, when taken together, encompass all the qualities needed to ensure that water is wholesome.

When standards are not met the Secretary of State is obliged to consider taking enforcement action. However, under Section: 19 (1) of the 1991 Water Industry Act, there is discretion not to enforce when the contravention is

considered trivial or where building or replacement work is needed to enable the standards to be met. In the latter case, we must give an Undertaking, as permitted in the Act, that the necessary remedial work will be completed by a given date. An Undertaking will not be accepted if there is a perceived risk to public health through continued non-compliance with the standard.

The Inspectorate can also issue notices under Regulation 28(4) that requires companies to mitigate risks, identified in the company's DWSPs.

In addition, Regulations 22 and 23 of The Water Supply (Water Quality) Regulations 2016 give the Secretary of State the power to authorise a departure from a standard. In general, Authorised Departures have the same conditions as Undertakings.

Water quality monitoring

We monitor water quality at many locations throughout our supply system. The results provide essential information that helps us manage and control the system. This ensures that the water at our customers' taps is of excellent quality.

We have sampling teams at Staines, Stevenage, Rickmansworth, Manningtree and Folkestone and our laboratory at Staines carries out analysis of the samples. Our sampling teams and our laboratory are United Kingdom Accreditation Service (UKAS) accredited.

Our position in 2017

During 2017, we had Undertakings and Notices in place relating to the parameters nitrate, manganese, lead and pesticides. Full details of these Undertakings and Notices are given in Appendix 2. We had no Authorised Departures in place.

Water quality information

A copy of the water quality data relating to the Water Supply Zone in which a customer lives is available on our website at www.affinitywater.co.uk/waterquality. Customers can also request this information by telephone on 0345 357 2407 or by writing to us at the address at the back of this booklet.

Customers can also contact us on the above number if they have any concerns about the quality of their water supply. Our Water Quality Services team can offer advice over the telephone and provide information on a variety of different water quality issues including taste and odour, hardness, discolouration and illness. If necessary, we can arrange a visit to a customer's property, at which time samples may be taken for subsequent analysis.

Further information on the most common queries regarding the quality of the water supply is in Appendix 4.

Drinking Water Inspectorate

The quality of drinking water in England and Wales is audited by the Drinking Water Inspectorate (DWI). Samples taken as part of the compliance monitoring programme from water treatment works, service reservoirs and customers' taps are analysed and results forwarded to the Inspectorate at regular intervals throughout each year.



In addition to the compliance analysis, we carried out over 400,000 tests on operational samples. The results from these samples provided further information essential for the day to day management of our operations.

In addition, the Inspectorate requires immediate notification of any water quality situation which could affect public health, cause concern to a customer or attract significant media attention.

During 2017, we informed the Inspectorate of 18 such events, two of which the Inspectorate regarded as not significant, twelve as minor and four as significant.

In each case, we contacted the relevant Local Authority and Health Authority to discuss the issue and took the appropriate remedial action, to ensure that public health was safeguarded.

The DWI has completed its investigations into all these events and reported their conclusions and recommendations to us. We have taken action on all the recommendations. Details of the significant and serious events can be found in Appendix 3.

Liaison with Health Authorities and Local Authorities

We regularly liaise with the Local Authorities and Health Authorities within our area as part of our obligation to protect public health. We advise them about changes in the quality of water supplies and discuss the possible implications to public health.

We meet regularly with these authorities throughout the year to discuss matters of mutual interest and we also respond to requests for assistance from Local Authorities and Health Authorities when they are investigating matters of public health.

Overall quality

In 2017, we carried out over 160,000 tests on water leaving treatment works, at service reservoirs and at customers' taps as part of our regulatory monitoring programme. The vast majority of the results complied with the standards set in the Water Supply (Water Quality) Regulations 2016, confirming that drinking water quality continues to be of a very high standard. In 2017 our overall compliance performance was 99.96% while our Mean Zonal Compliance (the measure used by DWI) was also 99.96%.

During the year, we carried out over 800 tests for *Cryptosporidium* on samples taken from seven treatment works where there is the potential for the water to contain *Cryptosporidium* Oocysts. *Cryptosporidium* Oocysts were not detected in any sample.

Drinking Water Quality

In 2017, 68 results from our regulatory monitoring programme did not comply with the relevant standard. In each case, we carried out a thorough investigation which established that the exceedence did not pose a risk to public health. Only 10 compliance parameters did not achieve full compliance. A commentary on the results of these parameters follows.

Bacteriological

1. Coliform Bacteria

Because coliform bacteria are widely distributed in the environment they are used as an indicator of possible pollution. Whenever coliforms were detected, we carried out a full investigation. All the investigations established that there was no risk to public health.

2. E.coli

E.coli were detected in two samples from customers' taps and one sample from a service reservoir. Our investigations established in all three cases the E.coli originated from the sample tap/pipework and the water supply was satisfactory.



Appearance

3. Turbidity

We detected a turbidity value above the standard at two treatment works. Follow up investigations established that these occurrences did not pose a risk to public health.

Chemical

4. Odour

Thirteen samples were found to have a detectable odour. Further sampling confirmed that there was no odour in the water supply.

5. Metaldehyde

This is a pesticide that has recently been detected in some raw water and is not readily removed by conventional pesticide removal treatment. Five samples exceeded the standard during 2017 but the level found did not represent a risk to health. Work is ongoing to reduce the levels of metaldehyde in the raw waters and investigate potential treatment solutions.

6. Lead

Lead was detected at a concentration above the standard in four samples taken from customers' properties. We replaced the lead communication pipes and gave advice to the customers on how to reduce the lead concentration in their drinking water.

7. Nickel

Nickel was detected at a concentration above the standard in one sample taken from a customer's property. Our investigation established this was likely to have been caused by nickel from the customer's tap.

8. Iron

Contraventions of the iron standard are generally due to the presence of corrosion deposits in some water mains. Although not a health risk, the discoloured water that may result is a nuisance to customers. To overcome these problems, we continued to clean and replace affected mains.

9. Benzo(a)pyrene

One sample was found to have a Benzo(a)pyrene concentration above the standard. Our investigation did not identify a cause and confirmed that the water supply was satisfactory.

10. Propylamide

Propylamide was detected at a concentration above the standard in three samples. Our investigation identified that there was a short, sharp increase in the concentration of Propylamide in the raw water in December which the treatment processes were unable to completely remove. Further samples were satisfactory.

Network Regulations – Annual Report of Activity 2017

At Affinity Water we are committed to safeguarding the health of our customers by protecting the quality of the water that we supply right up until the moment that it is used. This includes ensuring that the quality of the water that our customers receive is not adversely affected either after it enters their property by their own plumbing installation or by the actions of others within their community. Affinity Water is responsible for the supply of water to over 1.4 million household and over 80,000 non-household connections. Like all water undertakers, we have a duty to enforce the Water Supply (Water Fittings) Regulations 1999.

Together with other water companies throughout the UK, Affinity Water provides information annually to the Water Regulation Advisory Scheme (WRAS) on our inspection and enforcement activity. This provides our regulators and the public with a national picture of regulatory activity and helps us improve our own inspection process and performance.

During 2017 our Network Regulations Team carried out over one and a half thousand inspections across a wide range of customer premises and activity. We focused our work on properties containing high risk fluids (Category 3 or above) such as industry or agriculture, as these premises pose the greatest risk to water quality. Other areas of risk include shows, events and temporary supplies of water.

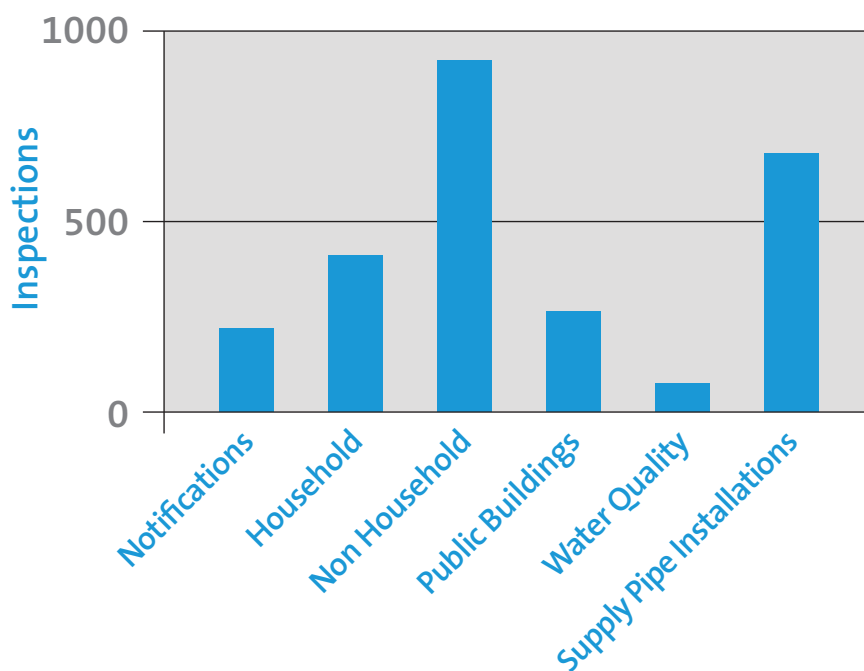
We worked with customers in industry, householders, event planners and local authorities to identify water quality issues or non-compliant fittings.

In 2017 one or more contraventions of the fittings regulations were identified in just over 42% of all the premises we inspected. Our inspectors identified over 10,000 faults with individual fittings of which over 93% have since been corrected and are now compliant.

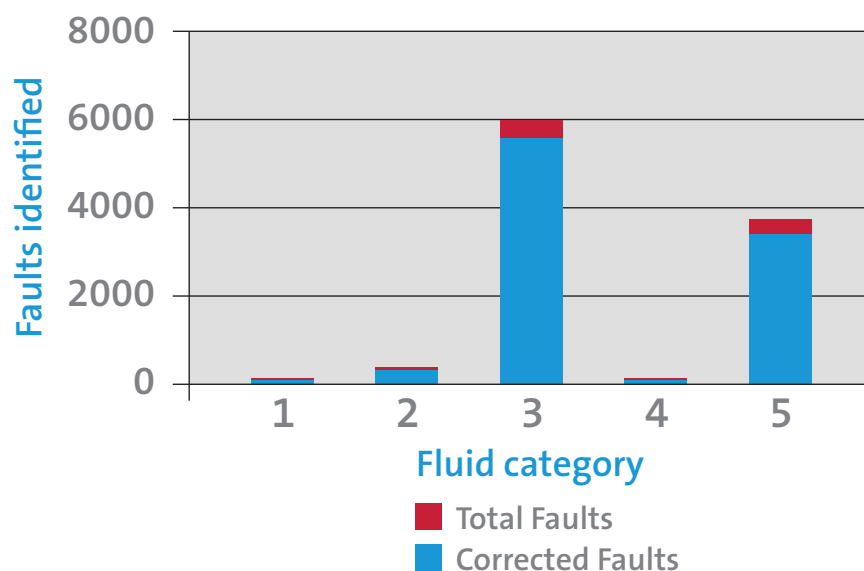
Issues were addressed by providing advice, recommending solutions or where necessary, through enforcement action and re-inspection.

Affinity Water's Regulations Technicians also investigated all water quality concerns where fittings issues were suspected and all water quality events relating to water quality compliance failures, the most common of these being taste and odour events or poor hygiene at the tap.

Annual Number of Inspections by Type

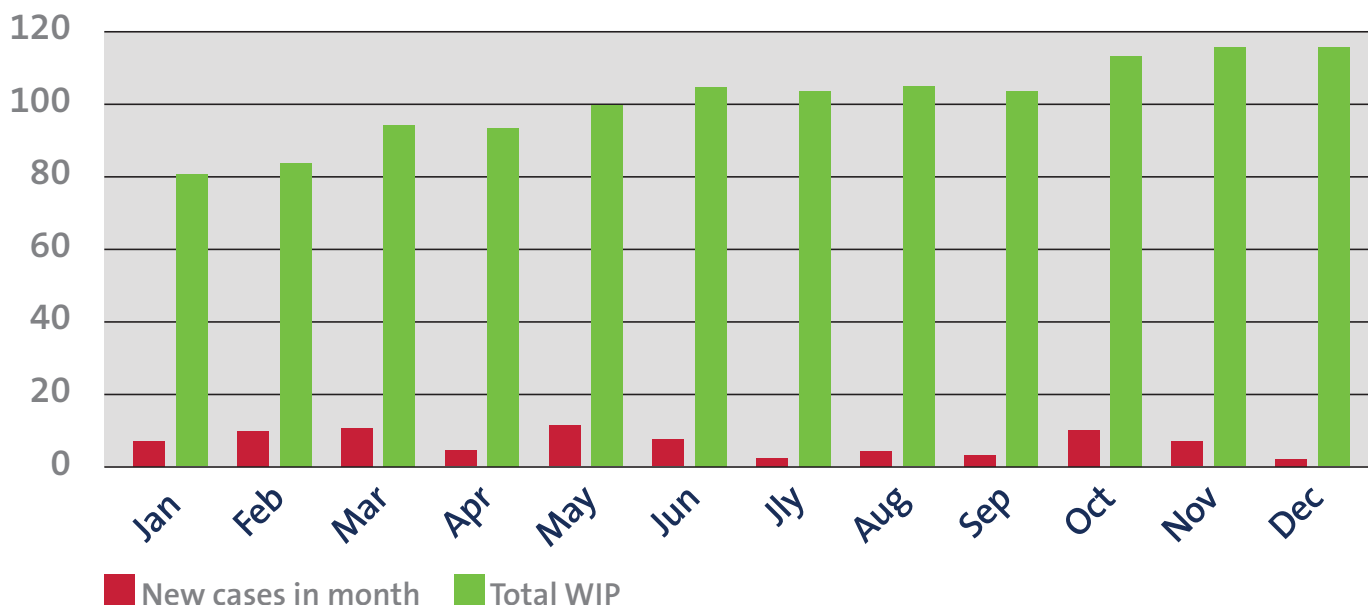


Fittings Faults by Fluid Category



Network Regulations – Annual Report of Activity 2017

Suspected illegal activity – Investigations 2017



Contraventions, Enforcement and Illegal Activity.

Each month we investigate numerous cases of unauthorised activity that occur on our network. Broadly, these events may involve tampering with our equipment, unauthorised connections to our distribution system, interfering with metering equipment to cause erroneous measurement or incomplete or inaccurate notification of building development. In addition, our Hydrant Enforcement Team also investigates reports of unauthorised use and theft of water from our hydrants and issues penalty notices where appropriate.

Many of the cases that we investigate are often time consuming and complex to resolve. They often involve detailed

investigation work in and out of hours to establish matters of fact and collect evidence.

Although many cases are often successfully resolved, the most appropriate course of action will always be proportional to the circumstances of the case, the seriousness and persistence of any contraventions.

Our Company found it necessary to issue a total of 749 enforcement notices to correct plumbing contraventions with fittings. We did not carry out any prosecutions or issue any formal cautions for fittings related offences or hydrant misuse during the year.

Training, Approval and Audit of Plumbers

We encourage all of our customers to use plumbers that are either listed on the national register of approved plumbers known as Watersafe or otherwise are members of an approved plumber's scheme. There are 386 such plumbers operating in Affinity Water's Area who have demonstrated their competence to work on plumbing systems. We also have 299 ground workers listed who are approved to carry out work on external services.

To assist the scheme, we operate a continuous programme of training and audit to support individuals working within the industry to achieve registration. During 2017 we trained and helped 39 individuals achieve registration and carried out 24 audits of installation work.

Drinking Water Quality Standards

Appendix 1

Prescribed/Specification Concentration or Values as listed in the Water Supply (Water Quality) Regulations 2016

| PARAMETER | WHAT IT MEANS | PRESCRIBED/SPECIFICATION CONCENTRATION OR VALUE |
|---|--|---|
| COLOUR (FILTERED) | Water should be clear and bright but natural organic matter or pipework corrosion products may occasionally impart a slight tint. The standard is set for reasons of appearance and requires the water to be virtually colourless. | 20 mg/l Pt/Co |
| TURBIDITY | The Standard requires that there should be no haziness caused by fine particles. Sometimes minute air bubbles in the water can produce a milky appearance. This clears if the water is left to stand for a few minutes. | 4 NTU (WSZ) 1 NTU (WTW) |
| ODOUR TASTE | Specialist tasting panels examine the water for unpleasant taste or odour. These standards are set for aesthetic reasons. | Acceptable to consumers and no abnormal change |
| HYDROGEN ION (pH) | A measure of acidity or alkalinity. Excessively acidic or alkaline water can contribute to corrosion of pipes and fittings. | Min. 6.5 to max. 9.5 |
| SULPHATE | Dissolves in water after contact with certain mineral deposits. Excess levels can contribute to corrosion. | 250 mg SO ₄ /l |
| SODIUM | May be naturally present after passing through certain mineral deposits/rock strata or introduced by some water softening processes. The standard is set well below the level which could affect health. | 200 mg Na/l |
| NITRATE | Nitrate arises from the use of fertilizers in agriculture and may be minimised by good practices and appropriate controls. The standard is set well below concentrations that could be harmful. | 50 mg NO ₃ /l |
| NITRITE | Nitrite may be associated with nitrate or with the use of ammonia in water disinfection. The standard is set well below concentrations that could be harmful. | 0.1 mg NO ₂ /l (WTW) 0.5 mg NO ₂ /l (WSZ) |
| AMMONIUM | May be naturally present in some waters and is not harmful. | 0.5 mg NH ₄ /l |
| TOTAL ORGANIC CARBON | This parameter assesses the organic content of the water. | No significant increase mg C/l |
| ALUMINIUM | Occurs naturally in many water resources. Aluminium compounds are also used at some water treatment works to remove impurities, but are themselves removed in the process. | 200 µg Al/l |
| IRON | Iron may be associated with the corrosion of old iron mains. Iron-based compounds are also used at some water treatment works to remove impurities, but are themselves removed in the process. The standard has been set for aesthetic reasons as levels persistently above the standard can give rise to discoloured water. | 200 µg Fe/l |
| MANGANESE | Occurs naturally in many water sources. The standard is set for aesthetic reasons as black deposits of manganese dioxide can give rise to discoloured water. | 50 µg Mn/l |
| COPPER | Any significant amount of copper is likely to come from corrosion of customers' pipes or fittings. Excess amounts can cause a metallic taste. | 2.0 mg Cu/l |
| FLUORIDE | Occurs naturally in many water sources. The standard is set to ensure no adverse effects. Affinity Water does not artificially fluoridate the water supplies. | 1.5 mg F/l |
| ARSENIC CADMIUM CYANIDE CHROMIUM MERCURY NICKEL ANTIMONY SELENIUM BORON | Very low levels of these substances may occur naturally, but higher amounts could be associated with industrial pollution. The standards are health related but have a large, built-in safety factor. | 10 µg As/l 5 µg Cd/l 50 µg CN/l 50 µg Cr/l 1 µg Hg/l 20 µg Ni/l 5 µg Sb/l 10 µg Se/l 1.0 mg B/l |

| PARAMETER | WHAT IT MEANS | PRESCRIBED/SPECIFICATION CONCENTRATION OR VALUE |
|---|---|---|
| BROMATE | Can be associated with industrial pollution or can occur as a by-product of the disinfection process. | 10 µg BrO ₃ /l |
| BENZENE | Benzene may be introduced into source water by industrial effluents or atmospheric pollution. | 1 µg/l |
| LEAD | Absent in water entering supply but variable concentrations of lead may be found in water at the customer's tap in older properties built at a time when lead was commonly used in domestic plumbing systems. The standard recognises that the intake of lead should be minimised for health reasons. | 10 µg Pb/l |
| PESTICIDES AND RELATED PRODUCTS | Associated with the use of these substances by agriculture, industry and local authorities. The standards are set well below the levels which might cause health problems, but levels should be minimised by good practice and appropriate controls. We measure the wide range of substances that may be present. | 0.1 µg/l individually 0.5 µg/l total |
| POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) | Associated with the deterioration of old coal tar linings which were used until the mid 1970s. The standards are set well below the levels of significance to health. | 0.1 µg/l |
| BENZO (A) PYRENE | | 0.010 µg/l |
| CONDUCTIVITY | A measure of the ability of the water to conduct an electric current and therefore a measurement of the mineral salts dissolved in the water. | 2500 µS/cm at 20°C |
| CHLORIDE | Occurs naturally in most water sources. Levels above the standard could give rise to taste issues and contribute to corrosion. | 250 mg Cl/l |
| TETRA-CHLOROMETHANE | The presence of these organic solvents is an indication of industrial pollution. | 3 µg/l |
| TRICHLOROETHENE AND TETRACHLOROETHENE | | 10 µg/l |
| 1,2 DICHLOROETHANE | | 3 µg/l |
| TRIHALOMETHANES | THMs are formed by the reaction of chlorine with naturally occurring organic compounds (THMs) in the water. The standard is set well below the level of significance to health. | 100 µg/l |
| TOTAL CHLORINE | Sufficient chlorine is added to all supplies to ensure the absence of harmful micro-organisms. At the same time we aim to avoid high levels in supply to minimise associated taste and odour. | No specific standard |
| RADIOACTIVITY: GROSS ALPHA GROSS BETA TRITIUM | These parameters are measured as part of initial screening for radioactivity in drinking water. Affinity Water sources have been assessed as very low risk. | 0.1 Bq/l 1.0 Bq/l 100 Bq/l |
| COLIFORM BACTERIA | These bacteria are widely distributed in the environment and provide a sensitive measure of microbiological quality. They are removed during the treatment process. However, if any coliform organisms are detected in drinking water immediate action is taken to investigate the source of the bacteria. Nearly all instances of coliforms in samples taken from customers' taps are due to microbiological growths in the domestic cold tap. | 0 per 100 ml |
| COLONY COUNT 22°C COLONY COUNT 37°C | A range of harmless bacteria that may be present in water supplies. These are monitored to ensure the efficiency of the treatment process and the cleanliness of the distribution system. | No specific standard (increasing trends are investigated) |
| E COLI ENTEROCOCCI CLOSTRIDIUM PERFRINGENS | Bacteria which are indicative of faecal pollution. | 0 per 100 ml 0 per 100 ml 0 per 100 ml |

Undertakings

Appendix 2

Undertakings and Notices to improve Water Quality

| TREATMENT WORKS | PARAMETER | ZONES SUPPLIED | ACTION REQUIRED | COMPLETION DATE | STATUS AT 31/12/2017 |
|--|--|--|---|-----------------|----------------------|
| Chertsey Egham Iver Walton | Individual Pesticides & Total Pesticides | Z047 Ickenham/Denham Z048 Northwood Z050 Barnet Z051 East Barnet Z054 Finchley Z055 Rayners Lane Z056 Harrow Z057 Colindale/Kingsbury Z059 Uxbridge Z060 Hillingdon Hayes Z061 Greenford/Northolt Z062 Wembley Z063 Southall Z064 Bagshot/Sunninghill Z065 Ashford Z066 Woking Z067 Weybridge/Woodham Z068 Walton Z069 Pirbright/Send Z084 Feltham Z085 West Drayton Z086 Staines Z087 Ruislip | Implement appropriate catchment management measures | 31/03/2020 | On-going |
| North Mymms | Individual Pesticides & Total Pesticides | Z023 Hatfield/Potters Bar Z050 Barnet Z051 East Barnet Z054 Finchley | Implement appropriate catchment management measures | 31/03/2020 | On-going |
| Ardleigh | Metaldehyde, Clopyralid and Total Pesticides | Z073 Mixed Zone Z074 Surface Zone | Implement appropriate catchment management measures | 31/03/2020 | On-going |
| Imports from Anglian Water, Essex & Suffolk Water and Thames Water | Metaldehyde and Total Pesticides | Z015 Knebworth/Tewin Z023 Hatfield/Potters Bar Z029 Luton North Z030 Luton Stopsley Z058 Hampstead Garden Suburb Z071 Pilgrims Hatch Z082 Luton Park Town | Monitor other companies' progress with their undertakings | 31/03/2020 | On-going |
| Iver | Individual Pesticides | Z047 Ickenham/Denham Z048 Northwood Z050 Barnet Z051 East Barnet Z054 Finchley Z055 Rayners Lane Z056 Harrow Z057 Colindale/Kingsbury Z059 Uxbridge Z060 Hillingdon Hayes Z061 Greenford/Northolt Z062 Wembley Z085 West Drayton Z087 Ruislip | Construct and commission nine additional GAC filters Trial alternative metaldehyde treatment options | 31/03/2018 | On-going |

| TREATMENT WORKS | PARAMETER | ZONES SUPPLIED | ACTION REQUIRED | COMPLETION DATE | STATUS AT 31/12/2017 |
|----------------------------------|-----------|----------------------------------|--|-----------------|--|
| The Grove Iver North Mymms | Lead | Z046 Watford Z054 Finchley | Replace or refurbish lead communication pipes | 31/03/2020 | On-going |
| Blackford | Manganese | Z047 Ickenham/Denham | Clean mains in the associated distribution network | 31/03/2017 | Mains cleaning completed in 2017 |
| Roydon | Manganese | Z024 Harlow Z025 Epping/Ongar | Install manganese removal treatment and clean mains in the associated distribution network | 31/03/2017 | Manganese removal treatment was installed in 2012 and the mains cleaning was completed in 2017 |
| Kings Walden | Nitrate | Z031 Offley/Kimpton | Install nitrate removal treatment | 31/07/2016 | The nitrate removal treatment was fully commissioned in 2017 |

Serious and Significant events

Appendix 3

| DATE | AREA AFFECTED | NATURE | ACTION TAKEN |
|---------------|----------------------|---|--|
| February 2017 | Barnet & Finchley | Loss of supply as a result of an air-lock in a trunk main. | Air-lock removed from mains network. |
| April 2017 | Stevenage | A small volume of water passed through the treatment works without being disinfected. | Automated valves were reset. There was no risk to public health during this event. |
| July 2017 | Hitchin | Detection of E coli in a sample from a reservoir | Our investigation identified the sampling pipework as the cause of the detection. There was no risk to public health. |
| August 2017 | Baldock & Letchworth | Loss of supplies as a result of a burst on a 6" main. | Main repaired. |

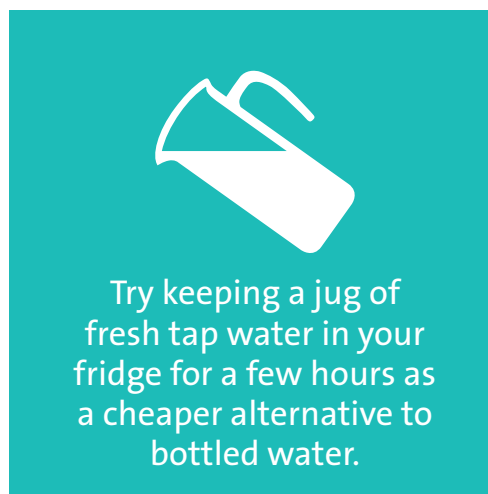
Quality Queries

Appendix 4

Water Quality does matter

We do all we can to ensure that water leaving our mains is safe for you to drink. We realise that from time to time you may have queries about the taste, smell or appearance of your water, so here is some helpful information from the most frequently asked questions.

As you can see, things that you do in your own property can affect your water.



Taste or smell

Chlorine taste

All our water supplies contain a small amount of chlorine to ensure it remains free from harmful bacteria and is safe to drink. Ordinarily the amount we add should not cause any problems with taste and smell. Chlorine is added continuously at a constant rate and if we have to increase the amount to maintain the standard of protection, it is done very gradually. Usually customers only notice a difference when they move to an area with a slightly higher chlorine residual. Keeping a jug of fresh tap water in your fridge for a few hours can help reduce the taste of chlorine.

You may prefer to use a jug filter or install a permanent carbon filter on the cold water feed. Please remember that when choosing this option you will remove the protective chlorine residue and if this water is not used within 12 hours it can deteriorate. The most common problem with taste and smell arises as a result of the small amount of chlorine in the water coming into contact with either domestic appliances or fittings that might cause a noticeable disinfectant taste. The main examples are:

Automatic washing machines and dishwashers

The hose used to connect the appliance to the cold water can cause an antiseptic taste so we recommend that you use one designed for drinking water purposes (i.e. chlorine resistant). There should also be a non-return valve installed on the connection to prevent any water lying in the connection hose being drawn back to the kitchen tap.

Tap and stopcock washers

An antiseptic taste can also be caused by the leaching of compounds from a washer into the water. The problem may be linked with the kitchen tap or stopcock and is remedied by renewing the washer.

Mixer taps

Mixer taps can contribute to a taste or smell because the cold water stands alongside the hot water. Mixer taps also contain a plastic or metal insert where bacteria can grow. The cold water should be allowed to run before using it for cold or hot water drinks and if the tap contains a metal or plastic insert, this should be cleaned regularly. Remember, always use water that is mains fed for drinking and cooking purposes and not water from the hot water system.

Kettles

Taste problems can arise from chemical compounds leaching into the water from components of some kettles. You can check if your kettle is causing the taste by boiling water in a saucepan and then comparing the taste. The problem is made worse by re-boiling or topping up already boiled water in the kettle. You can improve the taste by ensuring you fill the kettle up with fresh water from the cold tap and by rinsing the kettle each time before use. If the problem persists, you may need to change the kettle.

Other taste problems

New copper piping

Unusual tastes can come from traces of copper from domestic plumbing dissolving in water. The problem is usually most apparent after water has been standing in the

pipework for a long time. It may also be evident where there are long runs of copper pipework and in situations in which the water becomes warm. Traces of copper in the water are often indicated by a blue-green stain on scale in the kettle.

The taste usually improves with time as a thin protective film of hardness scale forms inside the copper pipe. The problem may also be solved by not using the first-drawn water for drinking.

In situations where the water becomes warm - for example where the pipe runs closely parallel to central heating pipes - the affected pipework should be lagged or re-routed.

Plastic pipe

An occasional problem is the spillage of petrol, diesel or other organic-type chemicals into the soil which can permeate this type of pipe. This causes a petrol-type taste in the water. If this occurs the problem can be remedied by removing the contaminated soil and renewing pipework.

Connections to redundant or infrequently used pipework

Taste problems can arise by traces of stagnant water being drawn back from a side branch into the mains feed to the cold water drinking tap. The problems can be cured by removing the redundant pipework. Where a side branch is not often used – such as to an outside tap – the stagnant water should be removed from time to time by turning on the tap or installing an appropriate non-return valve.

Appearance

Normally your water will look clear and bright with no visible particles, but on rare occasions its appearance could be different, as explained below.

WHITE OR CLOUDY: This can occur due to air in your water. To confirm this you can fill a glass with water and the air will clear from the bottom upwards. Air may be present in our mains following a burst and repair, or it may be due to a faulty tap. Please do not be alarmed as it generally clears within one or two hours. If it persists for longer please let us know. Aerated water is perfectly safe to drink.

YELLOW, ORANGE OR BROWN: There are many possible causes but the most usual reason is the disturbance of iron deposits in the mains due to a change in the direction or speed of flow of the water. Changes in flow can occur for a number of reasons such as a burst on a water main or moving water from one area to another to cope with increased demand for water for firefighting.

We take great care to prevent this and are currently undertaking a programme to replace old cast iron pipes. Your internal storage tank can also cause discolouration and it is always useful to see whether the problem arises from the mains fed cold water tap (by taking water from the kitchen tap) or via the storage system (by taking water from a bathroom tap). It may be that recent plumbing or water use has disturbed particles in your water system.

BLUE/BLUE-GREEN: stains on kitchen or bathroom surfaces, particularly under a dripping tap, may be caused by new or deteriorating copper pipes within your own internal plumbing. If you have a water softener on your non-drinking water system this can also contribute to staining under a dripping tap.

BLACK: discolouration of our water arises as a result of naturally occurring manganese. It can occur when there is a change in flow, as in 'yellow, orange or brown' section above.

WHITE PARTICLES: often occur in boiled water because most of our water is naturally hard (see next section). These particles are likely to be visible as scale build-up on kettle elements or in hot drinks, especially if you have used a new or recently descaled kettle.

Hard and soft water

HARD WATER: The area we supply has 'hard' water. The hardness occurs naturally and is characterised by the presence of high levels of calcium and magnesium, which are good for healthy teeth and bones.

De-scaling products can be used to remove any scale that hard water causes in kettles or in water fittings, but take care to follow manufacturers' instructions.

SOFT WATER: makes soap and detergents produce foam more easily and feels softer to the touch. If you would like softened water in your home, you can install a water softener. If you are considering installing a softener, always remember to keep a mains fed tap for cooking and drinking purposes.

If you would like to know the hardness of your water supply, please visit our website at www.affinitywater.co.uk and follow the water quality links.

Fluoride

Fluoride can occur naturally in some water supplies but is only present in low levels. We do not add any additional fluoride. If you require information about levels in your area please visit our website and follow the water quality links.

Lead

There is no lead in the water that leaves our treatment works but if your property is relatively old with lead plumbing material, there may be traces of lead in your drinking water. You can tell if you have lead piping (only used before 1970) because the pipes are a dull grey colour and when scratched reveal a bright silver colour. Even if you have lead pipes, the level of lead in the water will vary. Higher levels are found when water has been lying in the pipes for a while e.g. first thing in the morning or on return from holiday. It's worth running your tap when you use the water for drinking purposes so that you are drawing fresh water from our mains.

We have installed a treatment process which reduces the amount of lead that can enter the water supply via domestic plumbing.

Protection of your water supply

Water companies have special legal powers under the Water Supply (Water Fittings) Regulations 1999 to protect water supplies against contamination, waste and misuse. We enforce the Regulations, which guard against contamination by preventing backflow, back-siphonage or interconnection of water from other sources. Please contact us if you are planning any plumbing work and would like advice about the Regulations or visit our website www.affinitywater.co.uk.



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