Water Supply Zone: Royston (AF003)
Period: 01-Jan-2024 to 31-Dec-2024
Population: 17142

Parameter	Units	No. of Samples	PCV	No. of Samples >PCV	% of Samples >PCV	Min.	Mean	Max.
Microbiological Parameters								
Coliform bacteria	No./100ml	48	0	0	0	0	0	0
E coli	No./100ml	48	0	0	0	0	0	0
Clostridium perfringens	No./100ml	8	0	0	0	0	0	0
Enterococci	No./100ml	8	0	0	0	0	0	0
3 day plate count 22 °C	No./1ml at 22 °C	24	No abnormal change	0	0	0	0	1
Customer Parameters								
Alkalinity	mgHCO3/l	1	No PCV	0	0	294	294	294
Calcium	mgCa/l	1	No PCV	0	0	118	118	118
Chlorine (Residual)	mgCl2/l	48	No PCV	0	0	0.05	0.3	0.56
Colour	mg/l Pt/Co	24	20	0	0	<1.9	<2.5	<2.5
Fluoride	mgF/l	8	1.5	0	0	0.128	0.149	0.16
Hardness (Total)	mgCaCO3/l	1	No PCV	0	0	295	295	295
Hydrogen Ion (pH)	pH value	24	6.5-9.5	0	0	7	7.2	7.3
Quantitative Odour	Dilution No.	24	Abnormal & unacceptable to	0	0	0	0	0
Quantitative Taste	Dilution No.	24	consumers	0	0	0	0	0
Temperature	°C	48	No PCV	0	0	8	13.4	19.3
Turbidity	NTU	24	4	0	0	<0.10	<0.10	0.15
Chemicals								
Metals								
Arsenic	µgAs/l	8	10	0	0	<1.0	<1.0	<1.0
Aluminium	µgAl/l	8	200	0	0	<2.0	<5.0	<5.0
Antimony	µgSb/l	8	5	0	0	<0.20	<0.20	<0.20
Cadmium	µgCd/l	8	5	0	0	<0.05	<0.20	<0.20
Chromium	µgCr/l	8	50	0	0	<0.2	<0.2	1.1
Copper	mgCu/l	8	2	0	0	<0.019	0.046	0.23
Iron	µgFe/l	8	200	0	0	<3.3	<15.0	<15.0
Lead	µgPb/l	8	10	0	0	<1.00	<1.00	1.98
Manganese	µgMn/l	8	50	0	0	<0.4	<1.0	<1.0
Mercury	µgHg/l	8	1	0	0	<0.02	<0.10	<0.10
Nickel	µgNi/l	8	20	0	0	1.1	2.2	3
Sodium	mgNa/l	8	200	0	0	10	11.3	14.2
Pesticides								
Atrazine	µg/l	8	0.1	0	0	<0.011	<0.013	<0.013
Total Pesticide	µg/l	8	0.5	0	0	0	0.01	0.012
Additional Parameters								
Ammonium	mgNH4/l	8	0.5	0	0	<0.05	<0.05	<0.05
Benzene	µg/l	8	1	0	0	<0.07	<0.17	<0.17
Benzo (a) Pyrene	µg/l	8	0.01	0	0	<0.001	<0.001	<0.001
Boron	mgB/l	8	1	0	0	<0.045	<0.100	<0.100
Bromate	µgBrO3/l	8	10	0	0	<1.5	<1.5	<1.5
Chloride	mgCl/l	8	250	0	0	22	27	44
Electrical Conductivity at 20 °C	µS/cm at 20 °C	24	2500	0	0	490	520	582
Nitrate	mgNO3/l	8	50	0	0	30.4	34.3	38.9
Nitrite	mgNO2/l	8	0.5	0	0	<0.007	<0.007	<0.007
Nitrite Nitrate Formula		8	1	0	0	<0.61	<0.78	<0.78
Selenium	µgSe/l	8	10	0	0	<1.0	<1.0	<1.0
Sulphate	mgSO4/l	8	250	0	0	18	23	35
Sum of Tri & Tetrachloroethene	µg/l	8	10	0	0	0	0.6	0.8
Tetrachloromethane	µg/l	8	3	0	0	<0.2	<0.2	<0.2
Total Cyanide	µgCN/l	8	50	0	0	<6.5	<6.5	<6.5
Total Organic Carbon	mgC/l	8	No abnormal change	0	0	0.5	0.6	0.9
Total PAHs	µg/l	9	0.1	0	0	0	0	0
Total Trihalomethanes	µg/l	8	100	0	0	3.08	5.59	9.2
1, 2 dichloroethane	µg/l	8	3	0	0	<0.14	<0.15	<0.15

Notes
PCV = Prescribed Concentration or Value or Specification Concentration or Value

Commentary on Water Quality
Water quality was satisfactory in this zone in 2024.

Undertakings & Authorised Departures
No Undertakings or Authorised Departures applied to this water supply zone during 2024

Glossary

Drinking Water Standards

The report above show all regulatory parameters which are monitored in accordance with the current Water Supply (Water Quality) Regulations. Some non-regulatory parameters are also included for customer information only. The table below describes these parameters and what the standards can mean.

Regulatory Parameters		
Parameter	What it means	Standard
Microbiological Parameters		
Coliform bacteria	These bacteria are widely distributed in the environment and provide a sensitive measure of the microbiological quality of the water supply. 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 taps.	0 per 100ml
E coli Clostridium perfringens Enterococci	Bacteria which are indicative of possible faecal contamination. Immediate action is taken if these organisms are detected in drinking water.	0 per 100ml
2 day plate count 37 °C 3 day plate count 22 °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)
Customer Parameters		
Alkalinity	Alkalinity is normally due to bicarbonate salts of calcium and magnesium, but very occasionally sodium bicarbonate may contribute. In the former case the alkalinity is sometimes called the “temporary hardness” as it is removed by boiling.	No specific standard
Calcium	Occurs naturally in water after passage through mineral deposits and rock strata. Calcium contributes to the total hardness of water.	No specific standard
Chlorine (Residual)	Affinity Water disinfects some of our water supplies using chlorine. The concentration of chlorine used is carefully controlled and is set to ensure that water is adequately disinfected, while minimising any taste or odour issues for consumers.	No specific standard
Colour	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 water to be virtually colourless.	20 mg/l Pt/Co
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
Hardness (Total)	Hardness is due to calcium and magnesium salts dissolved in the water. Hard water is perfectly safe and there is evidence that it can even be good for your health, unless there are specific requirements to do so there is no need to soften the water. Almost all Affinity Water supplies are hard due to the natural geology of Southern England.	No specific standard
Hydrogen Ion (pH)	A measure of the acidity or alkalinity of water; pH <7.0 is acidic and pH >7.0 is alkaline. Excessively acidic or alkaline water can contribute to corrosion of pipes and fittings.	Min. 6.5 to max 9.5
Quantitative Odour Quantitative Taste	Specialist tasting panels examine the water for taste or odour. These standards are measure of the aesthetic quality of drinking water. Unusual odours or tastes may indicate a problem which needs investigating.	Abnormal & unacceptable to consumers
Temperature		No specific
Turbidity	The standard requires that there should be no haziness caused by fine particles. Sometimes minute air bubbles give the supply a milky appearance but on standing for a few minutes these will clear from the bottom of the glass upwards.	4 NTU
Chemicals		
Metals		
Antimony	Very low levels of these substances may occur naturally, but in higher amounts could be associated with industrial pollution. The standards are health-related and have a large safety factor built in.	5 µg Sb/l
Arsenic		10 µg As/l
Cadmium		5 µg Cd/l
Chromium		50 µg Cr/l
Mercury		1 µg Hg/l
Nickel		20 µg Ni/l
Aluminum	Occurs naturally in many water resources. Aluminum compounds are also used at some water treatment works to remove impurities, but are themselves removed in the process.	200 µg Al/l
Copper	Any significant amount of copper is likely to come from corrosion of customers' pipes and fittings. An excess of copper can cause a metallic taste.	2 mg Cu/l
Iron	Iron may be associated with corrosion of old iron water mains. Iron based compounds are also used at some water treatment works to remove impurities, but are themselves removed in the process. The standard for iron has been set for aesthetic reasons as levels persistently above the standard can give rise to discoloured water.	200 µg Fe/l
Lead	Absent in the 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 public health reasons.	10 µg Pb/l
Manganese	Occurs naturally in many waters but is usually removed during treatment. The standard is set for aesthetic reasons as black deposits of manganese dioxide can cause discoloured water.	50µg Mn/l
Sodium	May be naturally present after passing through certain mineral deposits and 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

Pesticides		
Atrazine	Associated with the use of these substances by agriculture, industry and local authorities. The standards are set well below the levels that 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
Carbetamide		0.1 µg/l
Clopyralid		0.1 µg/l
Glyphosate		0.1 µg/l
Mecoprop		0.1 µg/l
Metaldehyde		0.1 µg/l
Metazachlor		0.1 µg/l
Propyzamide		0.1 µg/l
Simazine		0.1 µg/l
2,4-D		0.1 µg/l
Total Pesticide		0.5 µg/l
Additional Parameters		
Ammonium	May be naturally present in some water sources and is not harmful.	0.5 mg NH4/l
Benzene	Benzene may be introduced into source water by industrial effluents or atmospheric pollution. Benzene can migrate through plastic pipework if petrol is spilled nearby.	1 µg/l
Benzo (a) Pyrene	Benzo(a)pyrene belongs to a group of compounds known as polycyclic aromatic hydrocarbons (PAHs). If detected in drinking water, the usual source is as a result of deterioration of coal tar linings in water mains. Benzo(a)pyrene is seldom detected in drinking water as a result of extensive water mains refurbishment and renewal.	0.01 µg/l
Boron	Very low levels of boron may occur naturally, but in higher amounts could be associated with industrial pollution. The standard is health related and has a large safety factor built in.	1 mg B/l
Bromate	Can be associated with industrial pollution or can occur as a by-product of the disinfection process.	10 µg BrO3/l
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
Electrical Conductivity at 20 °C	A measure of the ability of water to conduct an electric current and therefore a measurement of the mineral salts dissolved in the water.	2500 µs/cm at 20°C
Nitrate	Nitrate arises from the use of fertilisers from agricultural and may be minimised by good practices and appropriate controls. The standard is set well below concentrations that could be harmful.	50 mg NO3/l
Nitrite	Nitrite may be associated with nitrate or with the use of ammonium in water disinfection. Careful control of the disinfection process reduces formation of nitrite. The standard is set well below concentrations that could be harmful.	0.5 mg NO2/l
Selenium	Very low levels of selenium may occur naturally, but in higher amounts could be associated with industrial pollution. The standard is health related and has a large safety factor built in.	10 µg Se/l
Sulphate	Dissolves in water after contact with certain mineral deposits and rock strata. Excess levels can contribute to corrosion.	250 mg SO4/l
Sum of Tri & Tetrachloroethene	This standard is the sum of the concentration of trichloroethene and tetrachloroethene. The presence of these organic solvents is an indication of industrial pollution.	10 µg/l
Tetrachloromethane	The presence of this organic solvent is an indication of industrial pollution.	3 µg/l
Total Cyanide	Very low levels of cyanide may occur naturally, but in higher amounts could be associated with industrial pollution. The standard is health related and has a large safety factor built in.	50 µg CN/l
Total Organic Carbon	This parameter provides a measure of the total amount of organic matter in water.	No abnormal change
Total 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
Total Trihalomethanes	THMs are formed by the reaction of chlorine added as a disinfectant with naturally occurring organic compounds in the water. The standards are set well below the levels of significance to health.	100 µg/l
1, 2 dichloroethane	The presence of this organic solvent is an indication of industrial pollution.	3 µg/l

Further information can be found on the Affinity Water and Drinking Water Inspectorate websites:
https://www.affinitywater.co.uk/index.aspx
http://dwi.defra.gov.uk/