2023
Water Quality Report

The Jersey New Waterworks Company Limited

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Throughout this report 'the year' refers to the financial reporting year from 1 October 2022 to 30 September 2023.

Front cover image: Jack Irving, Operational Scientist

Executive summary

For more than 140 years, Jersey Water has been delivering safe, high-quality water to Islanders, 24 hours a day, 365 days a year.

We are proud that drinking water quality in Jersey is among the best in the world, demonstrated annually by our compliance with stringent UK and European quality standards. This year, our supply continued to be of excellent quality, with 99.98% of all samples of our treated supplies and 100% of all tests at our treatment works meeting regulatory requirements. The 2022 Environmental Performance Index (Yale)[1], which includes a global measure on safety of sanitation and drinking water, ranks the UK in the top six performing countries in the world and, while Jersey does not feature in the report, our water quality is comparable to the UK's.

Day and night, our Water Quality and Operations teams check and monitor our water supply at all stages of our supply process to make sure our water meets the relevant standards.

We use the latest technology and sophisticated monitoring systems to continually supply high quality water every time customers turn on their taps; we test both the untreated water stored in our reservoirs and elsewhere around the Island, and the treated water that we supply to Islanders. During our financial year from October 2022 to September 2023, we completed more than 27,000 sampling tests from untreated water and our water treatment works, and we visited more than 250 customers to check the quality of the water from our source to their taps. From this testing, just three samples were outside of the respective regulatory parameters, which presented no risk to public health. We have thoroughly investigated and taken action to prevent similar failures happening in the future.

1 Wolf, M. J, Emerson, J. W., Esty, D. C., de Sherbinin, A., Wendling, Z. A., et al. (2022). 2022 Environmental Performance Index. New Haven, CT: Yale Center for Environmental Law & Policy. epi.yale.edu

Jeanette Sheldon, Water Quality Manager

Max Jouault, Water Quality Technician

Investing in safe drinking water

In 2023, we had zero failures in our treated drinking water for nitrate or pesticides. In fact, for more than a decade, our drinking water has been compliant with the nitrate standard and, for the 7th consecutive year, compliant with the pesticide standard. This is the result of extensive work by the Action for Cleaner Water Group, (made up of Jersey Water, the Government of Jersey and the farming community) to make water quality improvements and protect the Island's catchments.

Since 1989, we have been closely monitoring the level of per- and polyfluoroalkyl substances (PFAS) in both raw water and drinking water and today we have an extensive sampling and analysis programme in place. The results of our testing provide assurance that Jersey's drinking water supply remains fully compliant with water quality limits for PFAS set by the EU Drinking Water Directive and UK Regulations.

We continue to work closely with the Government of Jersey's PFAS Technical Officer Group to investigate the pollution in the vicinity of the airport within the St. Ouen's Bay aquifer and Pont Marquet catchment. The Island needs a holistic solution to address the pollution issue and both the current and future water quality risks presented by PFAS. To manage the potential water quality risks from these catchments, we have suspended the use of these sources since November 2022. By taking this action, we are minimising PFAS as far as we practically can, without jeopardising our resources.

We are proud that drinking water quality in Jersey is among the best in the world

To reduce the amount of lead that could dissolve into drinking water from lead pipes or solder, we have plumbosolvency control treatment in place. During the financial year, we replaced 277 lead communication pipes, as part of our own planned programme of work and when customers upgraded their own supply pipe. We achieved 100% compliance with the drinking water standard for lead, a significant improvement compared to before we started our phosphate dosing strategy in 2014. We continue to review our approach to ensuring lead in drinking water is minimised and this has driven the continuous improvement in compliance with the current Jersey standard and the lower EU Directive standard.

Over the last ten years, we have replaced 16.32 kilometres of water mains, and removed iron sediment which causes water discolouration. Whilst more customers contacted us about water quality in 2023, we have seen an overall reduction in the number of customers reporting discoloured water in the last decade.

During 2023, we participated in an industry-wide research project with the Universities of Cardiff and Bath to better understand how to manage algae blooms and manganese in our raw water storage reservoirs. We also optimised our treatment programme which will minimise the risks of adverse taste and odours and manganese which can cause discolouration. As part of this project, we have optimised our chemical dosing techniques for managing algae, which has led to us using fewer chemicals and less manpower. This is better for the environment and more economical.

Jeanette Sheldon
Water Quality Manager
7 December 2023

We achieved 100% compliance with the drinking water standard for lead

One of our refill machines at Jersey Airport

Drinking water compliance and results

Throughout the year, we complete a detailed sampling and analysis programme to ensure we always provide high quality drinking water for our customers.

We test for a wide range of parameters, including metals, bacteria, nitrates, pesticides and per- and polyfluoroalkyl substances (PFAS). In line with EU and UK Regulations, and additional recommendations from the World Health Organisation, we have a water safety plan in place to evaluate potential risks and complete risk-based water quality testing to help manage those risks.

Every week, at regular intervals, we examine samples from our two treatment works at Handois and Augres, our two service reservoirs at Westmount and Les Platons, and customer properties.

Overall compliance

During the year, the quality of the water we supply remained high, with 99.98% of all samples passing stringent regulatory tests. There were just three tests that failed the standard out of 15,702 analyses of treated water, from our treatment works, service reservoirs and randomly selected customers. We have thoroughly investigated and taken action to avoid future occurrences.

Below, you can find more information in our summary findings and the more detailed results provided in the appendices to this report.

Percentage compliance

Performance at our water treatment works

We operate two water treatment works at Handois and Augrès. These treatment works use processes that are tailored to the individual quality of the raw water stored in our reservoirs. The majority of our water supply is derived from surface water, resulting from rainfall captured by streams and stored in our reservoirs, we need to fully treat the water to make sure it is of the highest quality for drinking water purposes.

We use a multi-stage treatment process, comprising chemically assisted clarification and filtration through sand and anthracite media. Following this treatment, the water is disinfected to ensure we remove any remaining bacteria present in the water, before it passes into the supply distribution network and onto our customers.
In 2023, all the samples we collected from the drinking water leaving the treatment works at both Handois and Augres passed the relevant standards, demonstrating our ongoing commitment to providing high quality, safe drinking water for the Island.

We are proud that drinking water quality in Jersey is among the best in the world

Performance of our service reservoirs

We have two service reservoirs which are strategically located on high ground at Westmount Road in St Helier and at Les Platons in Trinity. These are enclosed storage reservoirs which we use to make sure we maintain drinking water supplies during peak demand periods, for example in the mornings, evenings and during exceptionally hot days. The total storage capacity of these reservoirs is 18 megalitres, which is slightly below the average daily demand for the whole Island of 18.56 megalitres.

During the year, we carried out tests on the water stored in our service reservoirs every week. From these tests, one single coliform was detected in one sample from the Westmount service reservoir. A coliform failure is caused by bacteria commonly found in the wider environment, but does not pose a health risk. We thoroughly investigate all coliform detections and have already taken action to prevent reoccurrence. We will continue to closely monitor the Westmount reservoir and, if required, make investment in the service reservoirs.

Samples from customers' taps

To demonstrate the water is of high quality all the way to customers' taps, we took 240 water samples from randomly selected customer properties. All but two of the 2,222 analyses were compliant with regulatory limits. We thoroughly investigated both failures and identified that they were due to domestic plumbing issues. When this happens, we provide customers with appropriate advice. Subsequent samples taken from both properties were satisfactory.

We are grateful for all customers who support us with our sampling and analysis programme.

Lead pipework and solder

To reduce the amount of lead that could dissolve into drinking water from lead pipes or solder, we have plumbosolvency control treatment in place. This treatment forms a protective layer on the inside of the lead pipework.

During the year, all samples we collected passed the standard for lead and also the lower standard set by the EU Drinking Water Directive.

The most robust way to minimise any exposure to lead is to remove all the lead pipework and solder present. If customers replace their lead pipework, we will remove any lead communication pipes that may be present to supply drinking water from the mains to the customers property.

In 2023, we proactively replaced 277 of our lead communication pipes, as part of our mains renewal programme.

Handling customer contacts and enquiries

Every customer contact or enquiry we receive at Jersey Water is carefully investigated and recorded. In some cases, we will visit the customer's property to inspect the issue that has been reported and to take action to improve water quality, wherever possible. Distinct from an 'enquiry', a 'customer contact' is when a customer has a concern about their water quality.

The nature of the customer contacts and enquiries we received during the reporting year, and how we handled them, is summarised in the adjacent table.

In the last ten years, the number of customers contacting Jersey Water about their water quality has steadily reduced. We did however see a slight increase in 2022-2023, compared to the previous financial year. Whilst the number of customers contacting us remains lower than the industry average in the UK for 2022, we continue to thoroughly investigate all customer contacts and enquiries we receive and, if needed, take action to improve water quality.

Keeping our customers informed

		Consumer enquiries				
		Fluoride	Water hardness	Water quality report	Other information	
Total consumer enquiries	8	0	5	1	2	
		Consumer concerns				
		Pets and other animals	Lead and other analysis	Lifestyle	Incident related	Campaigns
Total customer concerns	9	0	9	0	0	0
Overall total	17					
Overall rate (contacts per 1,000 popuation)	0.17	England and Wales average 2022: 5.19				

Jack Irving, Operational Scientist and Victoria Smith, Laboratory Team Leader

The majority of the enquiries we receive relate to water discolouration, typically due to old, corroded steel or cast-iron pipes. We have undertaken an extensive programme to replace our old pipework and service connections. Burst mains and other work can, from time to time, disrupt water supplies, causing changes to the appearance of some customers' water for very small periods of time. In 2023, we replaced 1.78 km of the mains network, to improve the infrastructure for supplying water to our customers. We always advise customers in advance when we plan to carry out any works and we appreciate their cooperation.

We took bacteriological and chemical samples from five properties where customers suspected their water supply was causing illness. In all cases, the results were satisfactory. We took a further 51 bacteriological samples while investigating other consumer enquiries. Again, all samples were satisfactory.

Customers concerns about the quality of their water

		Consumer enquiries relating to water appearance						
Total number of appearance enquiries	62	Discoloured Bl/Br/Or	Discoloured blue/green	Particles	White - air	White - chalk	Animalcules	General condition
		38	2	9	2	0	1	10
		Consumer enquiries relating to taste or odour						
Total taste and odour enquiries	27	Chlorine	Earthy / musty	Petrol/ diesel	Other taste or odour			
		4	4	2	17			
		Consumer enquiries relating to illness						
Total (illness) enquiries	5	Gastroenteritis	Oral	Skin	Medical opinion			
		1	0	2	2			
Overall total	103							
Overall rate (contact per 1,000 population)	0.96	England and Wales average 2022: 1.22						

Quality of our raw water supply

The majority of the water we treat and supply is surface water captured by streams and stored in our six, large raw water storage reservoirs at Dannemarche, Grands Vaux, Handois, Millbrook, Queen's Valley and Val de la Mare.

Every week, we take samples from the streams and our storage reservoirs to supply our water treatment works and carry out laboratory analysis in order to monitor the quality of the raw water and select the optimum blend for treatment. Our water quality monitoring programme ensures that we identify and prevent any pollution incidents that may occur as a result of any changes in farming or agricultural practices in the catchment area.

Nitrates

For the 10th consecutive year, we are proud to report that we have been fully compliant with nitrate standards for drinking water. We achieved this through carefully selecting and blending raw water collected during the potato growing season and low nitrate water collected in the reservoirs before the growing season.

Nitrates in raw (untreated) water peaked at 107 mg/l in February 2023 in the Queen's Valley side stream catchment and averaged 41.2 mg/l throughout the Island in 2023, which is slightly up from 2022 (38.1 mg/l).

Working with the Government of Jersey, we publish figures for the concentrations of nitrates in raw water across the Island: stream nitrate map.

PFAS

We closely monitor the level of PFAS in drinking water through our extensive sampling and analysis programme. The results of our testing provide assurances that the drinking water we supply remains fully compliant with water quality limits for PFAS set by the EU Drinking Water Directive and UK Regulations.

Pesticides

Throughout 2022 and 2023, we carefully managed the raw water that we take from our reservoirs to be treated at our treatment works, to optimise water quality and minimise pesticide concentrations. We monitor our water for pesticides by using an analytical method which scans for 450 substances, which allows us to quickly identify any issues.

During 2023, of the 306 samples, we detected 25 instances where the concentrations in our raw water supply were 0.1 µg/l or higher. Due to careful selection of which reservoir to use and the treatment used, there were no breaches of the pesticide limit in our drinking water.

Katie Minchinton, Water Quality Technician

Understanding test results

Regulatory analyses

The Water (Jersey) Law 1972 (as amended) requires two types of monitoring at the treatment works and service reservoir outlets and in the distribution system:

(i) Check monitoring

Testing performed frequently to ensure that the treatment works and the water in distribution is suitable for supply.

(ii) Audit monitoring

Testing performed less frequently than check monitoring and which is designed to test the quality of the water supplied against the full requirements of the Water (Jersey) Law 1972.

Over the last ten years, we have replaced 16.32 kilometres of water mains, and removed iron sediment which causes water discolouration.

Term	Definition
Substances and parameters	The item we are testing for.
Specific concentration or value (maximum) or state	The maximum or range of values allowed by law in the water supply (regulatory limit).
mg/l	Milligrams per litre or parts per million, equivalent to 1p in £10,000.
µg/l	Micrograms per litre or parts per billion, equivalent to 1p in £10,000,000.
µS/cm	The unit of measure commonly used for electrical conductivity in water, microSiemens/cm.
Sample Point	The location where the sample was taken.
Min	The minimum or lowest result produced for that test.
Mean	The average value of all the results produced for that test.
Max	The maximum or highest result produced for that test.
% Compliance	The percentage of the results that comply with the regulatory limit.
MPN	Most probable number – a statistical method used to estimate the viable numbers of bacteria in a sample.
CFU	Colony-forming units – a physical count of the number of colonies of bacteria visible on a membrane or an agar plate

Appendix 1: 2023 Treatment Works performance – Check monitoring

Substances and parameters	Specific concentration or value (maximum) or state	Sample point	Min	Mean	Max	% Compliance	What it means
Coliform bacteria	0 MPN per 100ml	Augrés	0	0	0	100	Detection of coliform bacteria may indicate sub-optimal operation of the treatment process or ingress of contamination from breaches in the integrity of the distribution system.
		Handois	0	0	0	100	
Colony counts	No abnormal change	Augrés	No abnormal change			100	Monitoring water supplies for colony count bacteria can be useful for monitoring trends in water quality or detecting sudden changes in quality.
		Handois				100	
Conductivity	2500 µS/cm at 200°C	Augrés	436	504	615	100	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.
		Handois	423	521	624	100	
E.coli	0 MPN per 100ml	Augrés	0	0	0	100	Primary indicator of faecal contamination of treated water.
		Handois	0	0	0	100	
Nitrite	0.1 mg NO_2/l	Augrés	<0.003	<0.003	0.018	100	Nitrite may be associated with nitrate or with the use of ammonia in water disinfection.
		Handois	<0.003	<0.003	0.012	100	
Residual disinfectant	No value mg Cl_2/l	Augrés	0.42	0.56	0.73		Sufficient chlorine is added to all supplies to ensure the absence of harmful microorganisms.
		Handois	0.33	0.50	0.67		
Turbidity	1 NTU	Augrés	0.05	0.10	0.16	100	The Standard requires that there should be no haziness caused by fine particles.
		Handois	0.05	0.11	0.57	100	

Appendix 2: 2023 Treatment Works performance – Audit monitoring

Substances and parameters	Specific concentration or value (maximum) or state	Sample point	Min	Mean	Max	% Compliance	What it means
Benzene **1,2 dichloroethane**	1.0 µg/l 3.0 µg/l	Augrés Handois	All results were below limit of detection from both sample points.			100 100	Benzene may be introduced into source water by industrial effluents or atmospheric pollution. 1,2 dichloroethane is an organic solvent, its presence is an indication of industrial pollution.
Boron	1.0 mg B/l	Augrés	0.074	0.167	0.401	100	The levels of boron have been influenced by the prolonged run of the desalination plant this year. Although higher than normal the amount found is well within the standards which have a large built-in safety factor.
		Handois	0.087	0.210	0.443	100	
Bromate	10 µg BrO3/l	Augrés	<0.8	<0.8	<0.8	100	Bromate can be associated with industrial pollution or can occur as a by-product of the disinfection process.
		Handois	<0.8	<0.8	0.9	100	
Clostridium perfringens	0 CFU per 100 ml	Augrés	0	0	0	100	The presence of Clostridium perfringens in filtered water and/or final water may indicate deficiencies in the filtration process (e.g. filter breakthrough) or in the disinfection process.
		Handois	0	0	0	100	
Cyanide	50 µg CN/l	Augrés	<4.1	<4.1	<4.1	100	Very low levels 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.
		Handois	<4.1	<4.1	<4.1	100	
Mercury	1.0 µg Hg/l	Augrés	<0.04	<0.04	<0.04	100	Low levels of mercury may occur naturally in water after it has passed through various mineral deposits and rock strata. The standards are health-related and have a large safety factor built in. Mercury is rarely found in drinking water.
		Handois	<0.04	<0.04	<0.04	100	
Tetrachloromethane	3 µg/l	Augrés	<0.11	<0.11	<0.11	100	This substance is an organic solvent, its presence is an indication of industrial pollution.
		Handois	<0.11	<0.11	<0.11	100	
Trichloroethene &} **Tetrachloroethene}**	10 µg/l	Augrés	<0.10	<0.10	0.17	100	Trichloroethene & Tetrachloroethene are organic solvents, their presence is an indication of industrial pollution.
		Handois	<0.10	<0.10	0.17	100	

Appendix 2: 2023 Treatment Works Performance – Audit monitoring (continued)

Substances and parameters	Specific concentration or value (maximum) or state	Sample point	Min	Mean	Max	% Compliance	What it means
Chloride	250 mg Cl/l	Augrés	46	62	84	100	Occurs naturally in most water sources. Levels above the standard could give rise to taste issues and contribute to corrosion.
		Handois	49	70	96	100	
Fluoride	1.5 mg F/l	Augrés	<0.01	0.015	0.04	100	Occurs naturally in many water sources. The standard is set to ensure no adverse effects. Jersey Water does not artificially fluoridate the water supplies.
		Handois	<0.01	<0.01	0.04	100	
Gross Alpha	0.1 Bq/l	Augrés	<0.020	<0.020	<0.020	100	These parameters are measured as part of screening for radioactivity.
		Handois	<0.020	<0.020	<0.020	100	
Gross Beta	1.0 Bq/l	Augrés	<0.28	<0.28	<0.28	100	
		Handois	<0.28	<0.28	<0.28	100	
Sulphate	250 mg SO_4/l	Augrés	72	82	93	100	Dissolves in water after contact with certain mineral deposits. Excess levels can contribute to corrosion.
		Handois	70	79	92	100	
Total Organic Carbon	No abnormal change	Augrés	1.1	1.5	2.1	100	This parameter assesses the organic content of the water.
		Handois	1.1	1.5	1.9	100	

Appendix 3: 2023 treatment works pesticide analysis – Audit monitoring

We analysed a group of 83 pesticides from the treated water that leaves our treatment works to be supplied to our customers. The following table shows the ones that were above the limit of detection. 72 substances were not.

Substances and parameters	Specific concentration or value (maximum) or state	Sample Point	Min	Mean	Max	% Compliance
Atrazine Deisopropyl	0.1 µg/l	Augrés	<0.004	<0.004	0.010	100
		Handois	<0.004	<0.004	0.009	100
Bentazone	0.1 µg/l	Augrés	<0.007	<0.007	0.015	100
		Handois	<0.007	<0.007	0.009	100
Clopyralid	0.1 µg/l	Augrés	<0.007	<0.007	0.011	100
		Handois	<0.007	<0.007	0.012	100
Flufenacet	0.1 µg/l	Augrés	<0.002	<0.002	0.003	100
		Handois	<0.002	<0.002	<0.002	100
Fluopicolide	0.1 µg/l	Augrés	<0.003	<0.003	0.005	100
		Handois	<0.003	<0.003	0.005	100
Metobromuron	0.1 µg/l	Augrés	<0.003	<0.003	0.012	100
		Handois	<0.003	<0.003	0.064	100
Metribuzin	0.1 µg/l	Augrés	<0.003	<0.003	0.008	100
		Handois	<0.003	<0.003	0.003	100
Nicosulfuron	0.1 µg/l	Augrés	<0.003	<0.003	<0.003	100
		Handois	<0.003	<0.003	0.006	100
Oxadixyl	0.1 µg/l	Augrés	0.008	0.014	0.057	100
		Handois	0.010	0.020	0.029	100
PCP (Pentachlorophenol)	0.1 µg/l	Augrés	<0.005	<0.005	0.011	100
		Handois	<0.005	<0.005	0.005	100
Prosulfocarb	0.1 µg/l	Augrés	<0.005	<0.005	0.008	100
		Handois	<0.005	<0.005	<0.005	100
Total Pesticides	0.5 µg/l	Augrés	0.008	0.017	0.073	100
		Handois	0.010	0.023	0.103	100

Appendix 4: 2023 treatment works per- and polyfluoroalkyl substances (PFAS) Analysis– Audit monitoring

We analysed a group of 47 per- and polyfluoroalkyl substances have been analysed during the year from the treated water that leaves our treatment works to be supplied to our customers . All results are reported as µg/l. The following table shows the ones that were above the limit detection. 39 substances were not found at all.

Per- and polyfluoroalkyl substances	Sample Point	Min	Mean	Max	% Compliance
PFBA (357-22-4) Perfluoro-n-butanoic acid	Augrés	<0.005	<0.005	0.006	100
	Handois	<0.005	<0.005	0.012	100
PFBS (375-73-5) Perfluoro-1-butanesulfonate	Augrés	<0.005	<0.005	0.007	100
	Handois	<0.005	0.005	0.008	100
PFHpA (375-85-9) Perfluoro-n-heptanoic acid	Augrés	<0.005	<0.005	0.005	100
	Handois	<0.005	<0.005	0.006	100
PFHxA (307-24-4) Perfluoro-n-hexanoic acid	Augrés	<0.005	0.005	0.013	100
	Handois	<0.005	0.007	0.014	100
PFHxS (355-46-4) Perfluoro-1-hexanesulfonate	Augrés	<0.005	<0.005	0.009	100
	Handois	<0.005	0.005	0.010	100
PFOA (335-67-1) Perfluoro-n-octanoic acid	Augrés	<0.005	<0.005	0.010	100
	Handois	<0.005	0.006	0.012	100
PFOS (1763-23-1)	Augrés	<0.005	<0.005	0.016	100
	Handois	<0.005	<0.005	0.013	100
PFPA (2706-90-3) Perfluoro-n-pentanoic acid	Augrés	<0.005	<0.005	0.007	100
	Handois	<0.005	0.005	0.007	100
Total PFAS	Augrés	0.005	0.027	0.058	100
	Handois	0.012	0.038	0.055	100

Appendix 5: 2023 Service reservoir performance – Check monitoring

Substances and parameters	Specific concentration or value (maximum) or state	Sample Point	Min	Mean	Max	% Compliance	What it means
Coliform bacteria	0 MPN per 100ml (95% of samples)	Les Platons East	0	0	0	100	Detection of coliform bacteria may indicate suboptimal operation of the treatment process or ingress of contamination from breaches in the integrity of the distribution system. For water to be deemed wholesome leaving a service reservoir there has to be a 95% or greater compliance with the coli-form bacteria regulatory limit.
		Les Platons West	0	0	0	100	
		Westmount	0	0	1	98.1	
Colony counts	No abnormal change	Les Platons East	No abnormal change			100	Monitoring water supplies for colony count bacteria can be useful for monitoring trends in water quality or detecting sudden changes in quality.
		Les Platons West				100	
		Westmount				100	
E.coli	0 MPN per 100ml	Les Platons East	0	0	0	100	Primary indicator of faecal contamination of treated water.
		Les Platons West	0	0	0	100	
		Westmount	0	0	0	100	
Residual disinfectant	No value mg Cl_2/l	Les Platons East	0.02	0.16	0.33		Sufficient chlorine is added to all supplies to ensure the absence of harmful microorganisms.
		Les Platons West	0.02	0.14	0.45		
		Westmount	0.08	0.17	0.35		

Appendix 6: 2023 Water quality in the supply zone – Check monitoring

Substances and parameters	Specific concentration or value (maximum) or state	Min	Mean	Max	% Compliance	What it means
Aluminium	200 µg Al/l	<6.0	19.4	97.3	100	Occurs naturally in many water resources. Aluminium compounds are also used at some water treatment works to remove impurities. These compounds are removed in the process.
Ammonium	0.50 mg NH_4/l	<0.01	0.03	0.14	100	May be naturally present in some waters and is not harmful.
Coliform bacteria	0 MPN per 100ml	0	0	0	100	Detection of coliform bacteria may indicate sub-optimal operation of the treatment process or ingress of contamination from breaches in the integrity of the distribution system.
Colony counts	No abnormal change	No abnormal change			100	Monitoring water supplies for colony count bacteria can be useful for monitoring trends in water quality or detecting sudden changes in quality.
Colour	20 mg/l Pt/Co	<0.99	<0.99	2.39	100	Water should be clear and bright but natural organic matter or pipework corrosion products may occasionally impart a slight tint.
Conductivity	2500 µS/cm at 20^{0}C	442	514	622	100	A measure of the ability of the water to conduct an electric current and therefore a measure of the mineral salts dissolved in the water.
Clostridium perfringens	0 CFU per 100ml	0	0	0	100	The presence of Clostridium perfringens in filtered water and/or final water may indicate deficiencies in the filtration process (e.g. filter breakthrough) or in the disinfection process.
E.coli	0 MPN per 100ml	0	0	0	100	Primary indicator of faecal contamination of treated water.
Residual disinfectant	No value mg Cl_2/l	0.01	0.16	0.69		Chlorine is added to our water along with ammonia to form a stable chloramine disinfectant compound, to ensure that there are no harmful bacteria in the water we supply.

Appendix 6: 2023 Water quality in the supply zone – Check monitoring (continued)

Substances and parameters	Specific concentration or value (maximum) or state	Min	Mean	Max	% Compliance	What it means
Cyanide	50 µg CN/l	<4.1	<4.1	<4.1	100	Very low levels 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.
Hydrogen ion	10.0 pH value 6.5 (min)	6.3	7.8	8.5	98.7	A measure of acidity or alkalinity. Excessively acidic or alkaline water can contribute to corrosion of pipes and fittings.
Iron	200 µg Fe/l	<7.3	<7.3	69.0	100	Iron may be associated with the corrosion of old iron mains. The standard has been set for aesthetic reasons as levels persistently above the standard can give rise to discoloured water.
Manganese	50 µg Mn/l	<1.7	6.4	51.5	98.7	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.
Nitrate	50 mg NO_3/l	11.8	27.4	39.6	100	Nitrate arises from the use of fertilisers in agriculture and may be minimised by good practices and appropriate controls.
Nitrite	0.5 mg NO_2/l	<0.003	0.009	0.078	100	Nitrite may be associated with nitrate or with the use of ammonia in water disinfection.
Nitrate/Nitrite ratio	1.000	0.257	0.551	0.800	100	The regulations specify that the ratio according to the following formula must not exceed 1, [nitrate]/50 + [nitrite]/3, where the square brackets signify the concentrations in mg/l for nitrate (no3) and nitrite (no2) respectively.
Taste and odour	3 at 25^{0}C dilution number	0	0	3	100	The water is examined for unpleasant taste or odour. These are set for aesthetic reasons.
Turbidity	4 NTU	0.068	0.123	0.507	100	The Standard requires that there should be no haziness caused by fine particles.

Appendix 7: 2023 Water quality in the supply zone – Audit monitoring

Substances and parameters	Specific concentration or value (maximum) or state	Min	Mean	Max	% Compliance	What it means
Antimony	5.0 µg Sb/l	<0.20	<0.20	0.30	100	Very low levels 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.
Arsenic	10 µg As/l	<1.0	<1.0	<1.0	100	
Benzene	1.0 µg/l	<0.02	<0.02	<0.02	100	Benzene may be introduced into source water by industrial effluents or atmospheric pollution.
Benzo(a)pyrene	1.01 µg/l	<0.003	<0.003	<0.003	100	If detected, Benzo(a)pyrene is most likely the result of the deterioration of coal tar, which was historically used to line water mains. To our best knowledge coal tar lined pipes were never used in Jersey.
Boron	1.0 mg B/l	0.066	0.128	0.359	100	The levels of boron have been influenced by the prolonged run of the desalination plant this year. Although higher than normal the amount found is well within the standards which have a large built-in safety factor.
Cadmium	5.0 µg Cd/l	<0.12	<0.12	<0.12	100	Very low levels 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.
Chromium	50 µg Cr/l	<0.50	<0.50	0.70	100	
Copper	2000 µg Cu/l	<9	<9	34	100	Any significant amount of copper is likely to come from corrosion of customers' pipes or fittings. Excess amounts can cause a metallic taste.
1,2 Dichloroethane	3.0 µg/l	<0.12	<0.12	<0.12	100	The presence of this organic solvent indicates industrial pollution.
Enterococci	0 MPN per 100 ml	0	0	0	100	Used to assess the significance of the presence of coliform bacteria in the absence of *E.coli* or to provide additional information when assessing the extent of possible faecal contamination. They are regarded as secondary indicators of faecal pollution.
Fluoride	1.5 mg F/l	<0.01	0.01	0.10	100	Occurs naturally in many water sources. The standard is set to ensure no adverse effects. Jersey Water does not artificially fluoridate the water supplies.
Gross Alpha	0.1 Bq/l	<0.020	<0.020	<0.020	100	These parameters are measured as part of screening for radioactivity.
Gross Beta	1.0 Bq/l	<0.28	<0.28	<0.28	100	
Lead	10 µg Pb/l	<0.9	<0.9	<0.9	100	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.

Appendix 7: 2023 Water quality in the supply zone – Audit monitoring (continued)

Substances and parameters	Specific concentration or value (maximum) or state	Min	Mean	Max	% Compliance	What it means
Chloride	250 mg Cl/l	47	60	84	100	Chloride can occur naturally in source water and is a component of common salt. The standard is not health-related but set to avoid taste and corrosion potential.
Mercury	1.0 µg Hg/l	<0.04	<0.04	<0.04	100	Low levels of mercury may occur naturally in water after it has passed through various mineral deposits and rock strata. The standards are health-related and have a large safety factor built in. Mercury is rarely found in drinking water.
Nickel	20 µg Ni/l	<0.7	<0.7	1.1	100	Very low levels 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.
Polycyclic aromatic hydrocarbons	0.1 µg/l	<0.003	<0.003	<0.003	100	Polycyclic aromatic hydrocarbons is a group name for several substances present in petroleum based products such as coal tar, which was historically used to line water mains. To our best knowledge coal tar lined pipes were never used in Jersey.
Selenium	10 µg Se/l	<0.8	<0.8	0.8	100	Low levels of selenium may occur naturally in water after it has passed through various mineral deposits and rock strata. Selenium is an essential element and is required as part of the diet.
Sodium	200 mg Na/l	49.7	60.2	77.8	100	Sodium occurs naturally in water after passing through certain mineral deposits and rock strata or in brackish groundwater. Sodium salts are used extensively in the home and in industrial processes. Domestic water softeners regenerated with brine produce water containing an increased concentration of sodium. Always use unsoftened mains water for drinking, cooking and for preparing babies' feeds.
Sulphate	250 mg SO_4/l	74	83	92	100	Occurs naturally in many source waters after contact with particular mineral deposits and rock strata. The concentrations normally found in drinking water do not represent a risk to health.
Sum of Trichloroethene & Tetrachloroethene	10 µg/l	<0.10	<0.10	<0.10	100	These substances are organic solvents, their presence is an indication of industrial pollution.
Tetrachloromethane	3 µg/l	<0.11	<0.11	<0.11	100	
Total organic carbon	No abnormal change mg/l	1.4	1.6	1.9	100	This parameter provides a measure of the total amount of organic matter in water.