Guernsey Water
Water Quality Report

2018

States of Guernsey
Trading Assets

GuernseyWater
Running water

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CONTENTS

OUR 6 OUTCOMES

Our vision is focused on the value of our core business which is water and wastewater service provision.

“Customers always value the quality of our drinking water and the safe return of our wastewater to the environment.”

SAFE AND GOOD TO DRINK

Our customers trust that our drinking water looks good and tastes good

- **Invest in efficient water treatment to improve drinking water and reduce costs**
- **Reduce water quality-related customer complaints**

99.91%

COMPLIANCE WITH DRINKING WATER STANDARDS

In 2018, Guernsey Water provided 4,526 mega litres of safe and high quality drinking water (over 4 times the volume of St Saviour's Reservoir) to its customers.

Protecting public health with clean, fresh, wholesome drinking water is vitally important to Guernsey Water and in 2018 we conducted 6,741 laboratory analyses on compliance samples taken at water treatment works, service reservoirs and customers taps. These samples verify that the water produced at treatment works and supplied to customers complies with the standards set out in the regulations we follow as best practice.

Many more samples were analysed both in laboratories and on-site for operational reasons over and above these compliance samples, providing additional checks and monitoring of the performance of our assets.

The quality of water supplied was excellent with 99.91% of 6,741 analyses meeting the prescribed standards. The achievement of such a high compliance figure is due to the collective technical expertise of our staff that covers all aspects of the science and engineering of the public water supply.

Safe, clean drinking water is vital to public health and the wellbeing of our island. This is ever more important in the face of significant challenges to drinking water supplies from the impacts of climate change on the quality and availability of water resources. It is essential that good quality drinking water, and the investment by Guernsey Water necessary to achieve it, is maintained into the future.

2018 Water Quality Key Performance Indicators

- Achieve 99.5% compliance for Maximum Admissible Concentrations at water treatment works
- Achieve 99% compliance for Maximum Admissible Concentrations at service reservoirs
- Achieve 99% compliance for Maximum Admissible Concentrations at customer taps

Guernsey Water has achieved its 2018 water quality targets with overall compliance being higher in 2018 than in 2017 as the work we are doing to address water quality continues. Guernsey Water continues to provide safe, high quality drinking water to the satisfaction of its customer's requirements. There are a small number of occasions where water quality does not meet the high standard we expect and our customers deserve. We will continue to investigate and strive to eliminate these to further improve the quality of Guernsey's public drinking water supplies.

Tests taken from Guernsey Water's three operational treatment works, three service reservoirs, water tower and customers' taps in two water supply zones show that 99.91% of the 6,741 analyses met all national and European Union standards.
This shows a increase in compliance compared to the 2017 figure, which was 99.85%

Guernsey Water is regulated by the Director of Environmental Health and Pollution Regulation (DEHPR), with the current standard by which water quality is measured taken from England and Wales in the form of The Water Supply (Water Quality) Regulations, 2018. The regulations set out the parameters to be analysed for (Appendix A) and the required frequency of testing.

STEPHEN LANGLOIS
GENERAL MANAGER

SUMMARY

In 2018, there were no breaches at any of the three water treatment works (Kings Mills, Longue Hougue and St Saviour's).

Compliance with bacterial standards at the Island's three service reservoirs was slightly lower than in 2017 at 99.27%.

This was due to three low level bacterial detections at the water tower which on investigation was found to have a small defect in the roof which was remediated and no further detections occurred.

Supply zones (customer tap samples) had three failures in total; two were for bacteriological parameters and one was a Trihalomethane (THM) failure. Bacteriological parameters being present does not necessarily indicate ingress of contamination but they should be absent from treated water so their presence should always be investigated. THM's are disinfection by-products formed primarily by reactions between chlorine and organic matter (measured as Total Organic Carbon).

There are a number of factors which influence the formation of disinfection by-products and these include the type and concentration of disinfectant, the concentration of organic matter within the treated water, the temperature, pH and contact time/length of the distribution network. The decrease in the number of THM fails to one in 2018 from seven in 2017 is down to a number of factors including better water movement across the distribution system and improved disinfection controls.

The two bacteriological failures that were detected from customer's taps on further investigation and resampling were identified as being due to low chlorine levels in the system which resulted from prolonged periods of warm weather. This will continue to be a focus of our distribution management strategy going forward.

THM formation remains an area of focus and further work will be undertaken throughout our latest business planning period to further reduce these by operational and capital investment. The UK Drinking Water Inspectorate (DWI) is however clear that "at all times that actions taken to minimise disinfection by-product formation should not compromise the effectiveness of the disinfection process." Guernsey Water follows this guidance as best practice.

We regularly analyse for a wide range pesticides and of these only 31 were detected and no breaches of the 0.1 µg/l limit were observed. We have continued to monitor our streams regularly for the presence of glyphosate which is regularly detected but at present remains a low risk, and we will continue to monitor for this parameter in 2019 to ensure that the levels we find are of no concern to our treatment processes.

Perfluorooctane sulphonate (PFOS) has been monitored on a regular basis both in the raw water in St Saviour's Reservoir and treated water leaving St Saviour's water treatment works. The maximum result detected in the treated water analysis was 0.0768µg/l (ppb) which is within Tier 1 (<0.3µg/l) of the guidance issued by the UK DWI on PFOS (http://dwi.defra.gov.uk/stakeholders/information-letters/2009/10_2009annex.pdf).

Categorisation as Tier 1 merely recognises that there may be a potential hazard which should as a minimum be considered by a risk assessment. Guernsey Water has gone much further than this to ensure the protection of drinking water quality by working closely with the DEHPR and other States of Guernsey Departments to actively reduce PFOS levels found in raw water through the treatment of stream water from affected catchments as well as the removal and containment of contaminated soils.

The affected catchments have also been closely monitored and measures put in place (such as stream diverts) to minimise levels in raw waters. In 2018, the maximum detected PFOS concentration recorded in the raw water stored at St Saviour's Reservoir was 0.0854µg/l, slightly higher than the 0.029µg/l recorded in 2017. The reason for this increase being the lower rainfall levels experienced during the summer of 2018. There was a decrease in the maximum PFOS concentration detected in samples collected from streams, from 3.38µg/l in 2017 to 3.18µg/l in 2018. This was due to a combination factors including the ongoing remedial works at the airport and the natural variation in rainfall amounts.

There were a total of 95 water quality enquiries from customers in 2018, compared to 147 in 2017. The number of enquiries regarding taste & odour were down on 2017 figures at 33 and the number of enquiries regarding appearance were 52. Guernsey Water uses the same methodology for recording consumer contacts and enquiries regarding water quality as is used in England and Wales, whereby every contact is recorded and categorised to enable year on year comparison. This will remain an area of focus throughout our business planning period.

The implementation of Water Safety Planning in 2016, a proactive management system that aims to ensure clean, safe drinking water, continues to assist us in our aim of consistently supplying high quality drinking water to our customers. The updating and development of these plans will be ongoing throughout our business plan period, mirroring the improvements in planning across Europe and the United Kingdom.

“Drinking water is vital for public health so we strive to provide safe, clean water at all times and in 2018 our water quality remained high.”

MARGARET McGUINNESS,
WATER QUALITY RISK MANAGER

INTRODUCTION

Treated Water

Guernsey Water operates using current DWI regulations and guidance as best practice. This requires us to meet very high standards to satisfy our Regulator, the Director of Environmental Health and Pollution Regulation. Guernsey Water has four treatment works (three in service and one mothballed plant), three service reservoirs, a water tower and two water supply zones.

The general rationale of water movement in Guernsey is:

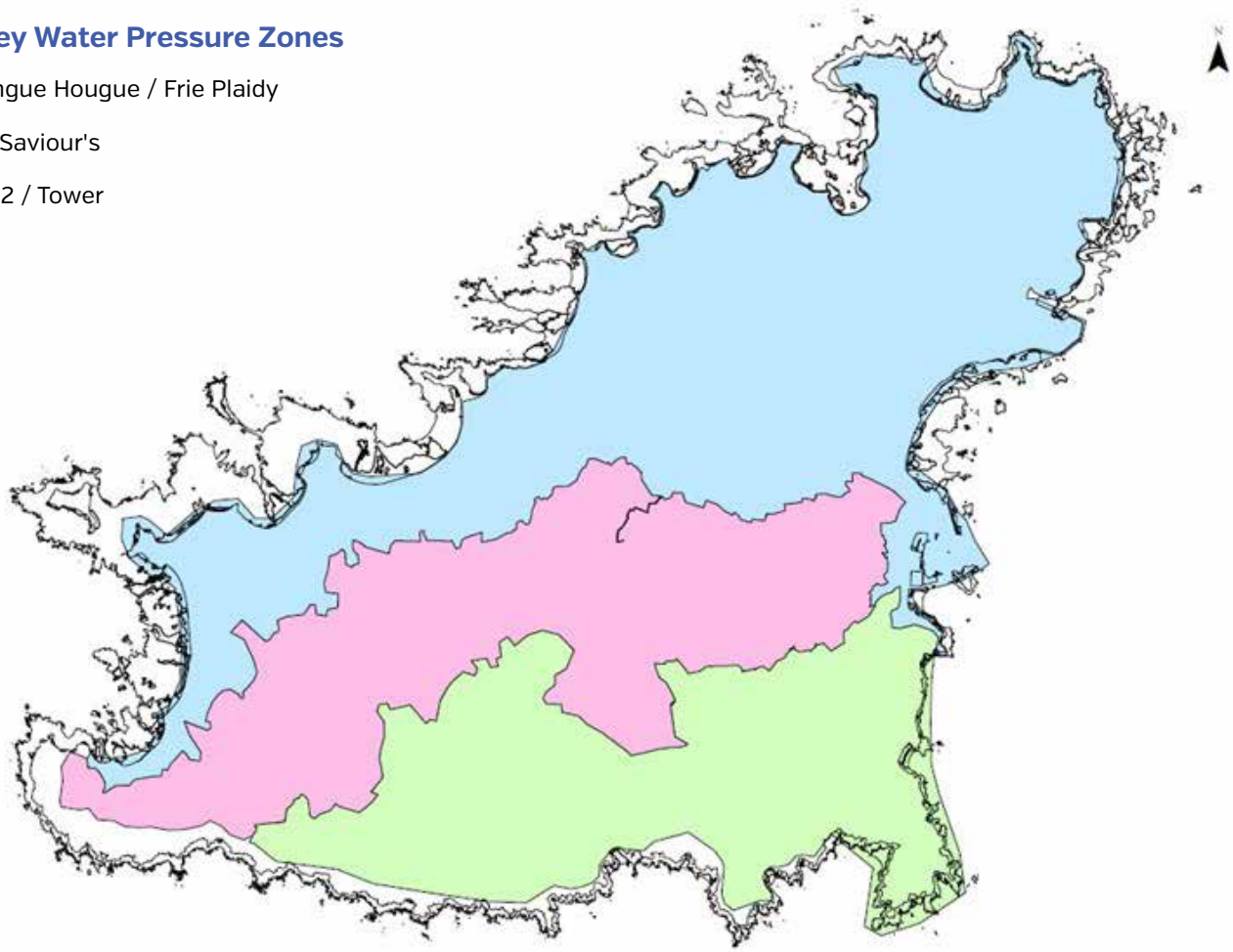
- St Saviour's water treatment works supplies water to No.2 East and West service reservoirs which then either goes into the Water Tower and onto the Tower Supply Zone (green in image below) or direct to No.2 Supply Zone (pink in image below).
- Longue Hougue water treatment works (or Kings Mills water treatment works when Longue Hougue is offline) supplies water direct into Longue Hougue Supply Zone (blue in image below) and into Frie Plaidy Service Reservoir.

Guernsey Water Pressure Zones

Longue Hougue / Frie Plaidy

St. Saviour's

No.2 / Tower



2018 COMPLIANCE SUMMARY

Below is a breakdown of the compliance for 2018, as measured against The Water Supply (Water Quality) Regulations, 2018.

Water Treatment Works

	St Saviour's	Juas (offline)	Kings Mills	Longue Hougue	Total
No of Breaches	0	0	0	0	0
No of Passes	1892	0	1448	1740	5080
No of Samples	1892	0	1448	1740	5080
% Compliance	100.00%	-	100.00%	100.00%	100.00%

Service Reservoirs & Water Tower

	No.2 East	No. 2 West	Frie Plaidy	Tower	Total
No of Breaches	0	0	0	3	3
No of Passes	100	104	104	101	409
No of Samples	100	104	104	104	412
% Compliance	100.00%	100.00%	100.00%	97.12%	99.27%

Distribution Zones

	North Zone	South Zone	Total
No of Breaches	2	1	3
No of Passes	719	527	1246
No of Samples	721	528	1249
% Compliance	99.72%	99.81%	99.76%

Overall Total – all parameters

	Total
No of Breaches	6
No of Passes	6735
No of Samples	6741
% Compliance	99.91%

Tables 1 to 11 have the breakdown of drinking water quality in the detailed format used by water companies in England and Wales and annually reported by the DWI.

Raw Water

With regard to the Island's water catchment area, Guernsey Water has in the past managed the legislation concerning pollution of this area. This has meant water quality that could potentially have an effect on drinking water has been managed through strict limits on discharges to the environment. This responsibility has now been moved to fall under the jurisdiction of the Director of Environmental Health and Pollution Regulation, as a result Guernsey Water is now managing the Island's wastewater infrastructure in line with the recommendations agreed by the States of Guernsey in Billet d'Etat XX1 2012 (dated 31st October 2012).

Raw water quality is closely monitored with analyses of 19 streams and stored water in 17 quarries and reservoirs. Raw water quality determines if water is collected and stored; in turn stored water is transferred to water treatment works based on water quality parameters to ensure that good quality water is supplied to our customers.

Nitrate levels in some streams are at the upper acceptable limit but through careful blending and storage, levels are reduced to ensure compliance with the prescribed limit of 50 mg/l for the provision of wholesome drinking water.

Tables 12 and 13 show the raw water quality that was observed in 2018 in the Island's various streams and storage reservoirs.

TREATED WATER SUMMARY

Treated Water 2018 Data Summary Tables

These tables contain a summary of results of treated water monitoring undertaken by Guernsey Water in 2018

Notes relating to the interpretation of the tables: -

The tables below show the maximum and minimum levels detected over the year. The symbol < indicates that the result was less than the limit of detection of the analytical method used. The symbol > indicates that the result was above the recording range of the analytical method used.

Table 1: Quality of water leaving treatment works - Directive requirements

Parameter	Prescribed Concentration or Value	Total number of tests	Tests Exceeding Specification	Minimum	Maximum	No. of WTWs with failures
Nitrite	0.1 mg NO_2/l	136	0	<0.03	<0.03	0
TOTAL	-	136	0	-	-	-

Table 2: Quality of water leaving treatment works - National requirements

Parameter	Prescribed Concentration or Value	Total number of tests	Tests Exceeding Specification	Minimum	Maximum	No. of WTWs with failures
Coliform Bacteria	0 number/100ml	637	0	0	0	0
E. coli	0 number/100ml	637	0	0	0	0
Cryptosporidium	oocysts <1 in 10 litres	20	0	0	0	0
TOTAL	-	1294	0	-	-	-

Table 3: Quality of water leaving treatment works - Additional monitoring requirements

Indicator Parameter	Prescribed Concentration or Value	Total number of tests	Tests Exceeding Specification	Minimum	Maximum
Colony Counts After 3 Days At 22°C	No abnormal change	624	0	0	220
Turbidity	1 NTU	626	0	<0.01	0.31
TOTAL	-	1250	0	-	-

Table 4: Quality of water leaving service reservoirs - National requirements

Parameter	Prescribed Concentration or Value	Total number of tests	Tests Exceeding Specification	Minimum	Maximum	No. of reservoirs failing standard
Coliform Bacteria	0 number/100ml	206	2	0	2	1
E. coli	0 number/100ml	206	1	0	1	1
TOTAL	-	412	3	-	-	-

Table 5: Quality of water leaving service reservoirs - National requirements

Indicator Parameter	Prescribed Concentration or Value	Total number of tests	Tests Exceeding Specification	Minimum	Maximum
Colony Counts After 3 Days At 22°C*	No abnormal change	208	11	0	189
TOTAL	-	208	11	-	-

*these are marked as n/a as they refer to changes observed and not a set numerical standard

Table 6a: Quality of water leaving bulk supply points - European Standards

Indicator Parameter	Prescribed Concentration or Value	Total number of tests	Tests Exceeding Specification	Minimum	Maximum	No. of supply points failing standard
1,2 Dichloroethane	3 µg/L	17	0	<0.07	<0.1	0
Benzene	1 µg/L	17	0	<0.02	<0.07	0
Boron	1 mg B/L	16	0	0.0697	0.108	0
Bromate	10 µg Br03/L	16	0	0.20	0.30	0
Cyanide	50 µg CN/L	22	0	<0.07	1.0	0
Fluoride	1.5 mg F/L	16	0	<0.1	0.14	0
Mercury	1 µg Hg/L	22	0	<0.02	<0.2	0
Tetrachloroethene / Trichloroethene	10 µg/L	17	0	0.00	0.00	0
TOTAL	-	143	0	-	-	-

Table 6b: Quality of water leaving bulk supply points - European Standards (pesticides)

Parameter	Prescribed Concentration or Value	Count of times detected	Tests Failed	Minimum	Maximum	No. of supply points failing standard
2,4-D	0.1 µg/L	12	0	0.003	0.031	0
2,3.6 Trichlorobenzoic acid	0.1 µg/L	1	0	0.004	0.004	0
Atrazine	0.1 µg/L	14	0	0.001	0.004	0
Atrazine Desethyl	0.1 µg/L	23	0	0.002	0.006	0
Atrazine Desisopropyl	0.1 µg/L	22	0	0.001	0.006	0
Benazolin	0.1 µg/L	4	0	0.003	0.005	0
Bromoxynil	0.1 µg/L	6	0	0.003	0.004	0
Carbendazim	0.1 µg/L	1	0	0.001	0.001	0
Clopyralid	0.1 µg/L	12	0	0.009	0.026	0
Carbendazim	0.1 µg/L	1	0	0.001	0.001	0
Dicamba	0.1 µg/L	4	0	0.007	0.017	0
Diflufenican	0.1 µg/L	3	0	0.002	0.003	0
Diuron	0.1 µg/L	6	0	0.003	0.007	0
Fenpropimorph	0.1 µg/L	1	0	0.001	0.001	0
Floroxypyr	0.1 µg/L	1	0	0.003	0.003	0
MCPP [Mecoprop]	0.1 µg/L	19	0	0.002	0.029	0
Metaldehyde	0.1 µg/L	1	0	0.009	0.009	0
Monuron	0.1 µg/L	1	0	0.003	0.003	0
Propazine	0.1 µg/L	1	0	0.002	0.002	0
Propiconazole	0.1 µg/L	8	0	0.003	0.008	0
Quinmerac	0.1 µg/L	1	0	0.001	0.001	0
Simazine	0.1 µg/L	18	0	0.002	0.006	0
Tebuconazole	0.1 µg/L	1	0	0.002	0.002	0
Terbuthylazine	0.1 µg/L	5	0	0.001	0.001	0
Trietazine	0.1 µg/L	2	0	0.004	0.012	0
Triclopyr	0.1 µg/L	15	0	0.004	0.012	0
Aldrin	0.03 µg/L	22	0	<0.003	<0.003	0
Dieldrin	0.03 µg/L	22	0	<0.002	<0.003	0
Heptachlor	0.03 µg/L	22	0	<0.002	<0.002	0
Heptachlor epoxide	0.03 µg/L	22	0	<0.002	<0.003	0
Pesticides - Total Substances	0.5 µg/L	23	0	0.015	0.137	0
Total		294	0	-	-	-

Table 7: Quality of water leaving bulk supply points - National Standards

Indicator Parameter	Prescribed Concentration or Value	Total number of tests	Tests Exceeding Specification	Minimum	Maximum	No. of supply points failing standard
Tetrachloromethane	3 µg/L	17	0	<0.02	<0.14	0
TOTAL	-	17	0	-	-	-

Table 8: Quality of water leaving bulk supply points - Additional Monitoring Requirements

Indicator Parameter	Prescribed Concentration or Value	Total number of tests	Tests Exceeding Specification	Minimum	Maximum	No. of supply points failing standard
Clostridium Perfringens	0 number/100ml	130	0	0	0	0
Conductivity	2500 µS/cm	136	0	600	645	0
Radioactivity - Gross Alpha	0.1 Bq/L	7	0	<0.023	<0.222	0
Radioactivity - Gross Beta	1 Bq/L	7	0	0.168	0.219	0
Radioactivity - Tritium	100 Bq/L	8	0	<5.0	<5.0	0
Total Organic Carbon (TOC)	No abnormal change	47	0	3.50	6.30	0
Chloride	250 mg/l	16	0	82.0	98.0	0
TOTAL	-	351	0	-	-	-

Table 9: Quality of water at consumer's tap (zones) - European Standards

Indicator Parameter	Prescribed Concentration or Value	Total number of tests	Tests Exceeding Specification	Minimum	Maximum	No. of zones with failures
Antimony	5 µg Sb/L	16	0	0.270	1.260	0
Arsenic	10 µg As/L	16	0	0.25	1.59	0
Benzo(a)pyrene	0.01 µg/L	16	0	<0.00022	<0.00022	0
Cadmium	5 µg Cd/L	16	0	0.01	0.020	0
Chromium	50 µg Cr/L	16	0	0.22	0.51	0
Copper	2000 µg Cu/L	16	0	28.20	391.00	0
E. Coli	0 number/100ml	156	0	0	0	0
Enterococci	0 number/100ml	16	0	0	0	0
Lead	25 µg Pb/L	16	0	0.16	1.20	0
Nickel	20 µg Ni/L	16	0	0.96	5.04	0
Nitrate	50 mg NO_3/L	16	0	12.6	30.3	0
Nitrite	0.5 mg NO_2/L	16	0	<0.03	<0.03	0
Polycyclic aromatic hydrocarbons (PAHs)	0.1 µg/L	16	0	0.000	0.002	0
Selenium	10 µg Se/L	16	0	0.26	3.75	0
Trihalomethanes (THMs)	100 µg/L	16	1	33.45	102.37	1
TOTAL	-	380	1	-	-	-

Table 10: Quality of water at consumer's tap (zones) - National Standards

Indicator Parameter	Prescribed Concentration or Value	Total number of tests	Tests Exceeding Specification	Minimum	Maximum	No. of zones with failures
Aluminium	200 µg Al/L	61	0	15.00	70.00	0
Colour	20 mg/L Pt/Co scale	61	0	<5	<5	0
pH	6.5 - 9.5 pH value	61	0	6.86	7.47	0
Iron	200 µg Fe/L	61	0	<10	65	0
Manganese	50 µg Mn/L	61	0	<10	15.00	0
Organoleptic Odour	3 at 25°C dilution number	61	0	0	1	0
Organoleptic Taste	3 at 25°C dilution number	61	0	0	1	0
Sodium	200 mg Na/L	16	0	56	70	0
Turbidity	4 NTU	61	0	<0.01	0.20	0
TOTAL	-	504	0	-	-	-

Table 11: Quality of water at consumer's tap (zones) - Additional Monitoring Requirements

Indicator Parameter	Prescribed Concentration or Value	Total number of tests	Tests Exceeding Specification	Minimum	Maximum
Ammonium	0.5 mg NH_4/L	61	0	<0.01	0.04
Coliform Bacteria	0 number / 100ml	156	3	0	3
Colony Counts after 72 hours at 22°C	No abnormal change	61	5	0	129
Conductivity	2500uS/cm	61	0	541	645
pH	<9.5	61	0	6.86	7.47
TOTAL	-	400	8	-	-

RAW WATER SUMMARY

Raw Water 2018 Data Summary Tables

These tables contain a summary of results of raw water monitoring undertaken by Guernsey Water in 2018.

Notes relating to the interpretation of the tables: -

The symbol < indicates that the result was less than the limit of detection of the analytical method used. The symbol > indicates that the result was above the recording range of the analytical method used.

Table 12: Quality of water in Island streams - Monitoring

Indicator Parameter	Units of Measure	Total number of tests	Minimum	Maximum
Conductivity	µS/cm	247	205	9350
Nitrate	mg NO_3/L	247	0.7	75.4
Ammonia	mg NH_4/L	247	<0.01	1.80
Phosphate	mg P/L	247	<0.002	1.30
Total Organic Carbon [TOC]	mg C/L	20	1.9	8.1
Coliforms	number / 100ml	239	20	>100,000
E.Coli	number / 100ml	239	10	>100,000
Enterococci	number / 100ml	239	3	>10,000
TOTAL	-	1725	-	-

Table 13: Quality of stored water in quarries and reservoirs - Monitoring

Indicator Parameter	Units of Measure	Total number of tests	Minimum	Maximum
pH	pH value	20	7.39	9.29
Conductivity	µS/cm	20	474	700
Total Oxidised Nitrogen	mg NO_3/L	20	0.70	33.30
Ammonium	mg NH_4/L	20	<0.01	1.10
Nitrite	mg NO_2/L	20	<0.03	0.68
Chloride	mg Cl/L	20	64	110
Coliforms	number / 100ml	20	0	>100,000
E. Coli	number / 100ml	20	0	>100,000
Enterococci	number / 100ml	20	0	>10,000
Total Organic Carbon [TOC]	mg C/L	5	2.3	13.8
TOTAL	-	185	-	-

Perfluorooctane Sulfonate (PFOS)

Since 2007 PFOS has been monitored in raw and treated water in accordance with guidance from DWI who set the 'wholesomeness' value as 1.0 µg/l. Guernsey Water has used its available water resources to manage the levels of PFOS in water leaving St Saviour's water treatment works. The tables below provide a breakdown of the levels of PFOS observed in 2018 in drinking water from St Saviour's water treatment works, St Saviour's reservoir and affected stream systems.

Table 14: Quality of water leaving treatment works - PFOS

Indicator Parameter	Prescribed Concentration or Value	Total number of tests	Tests Exceeding Specification	Minimum	Maximum
Perfluorooctane sulfonate (PFOS)	1.0 µg $C_8HF_{17}O_3S$/L	32	0	0.0154	0.0768
TOTAL	-	32	0	-	-

Table 15: Quality of water in St Saviour's Reservoir - PFOS

Indicator Parameter	Prescribed Concentration or Value	Total number of tests	Minimum	Maximum
Perfluorooctane sulfonate (PFOS)	1.0 µg $C_8HF_{17}O_3S$/L	22	0.0281	0.0854
TOTAL	-	22	-	-

Table 16: Quality of water in Island streams - PFOS

Indicator Parameter	Prescribed Concentration or Value	Total number of tests	Minimum	Maximum
Perfluorooctane sulfonate (PFOS)	1.0 µg $C_8HF_{17}O_3S$/L	87	0.0230	3.1800
TOTAL	-	87	-	-

WATER CATCHMENT

2018 Water Catchment Area Nitrate Loadings

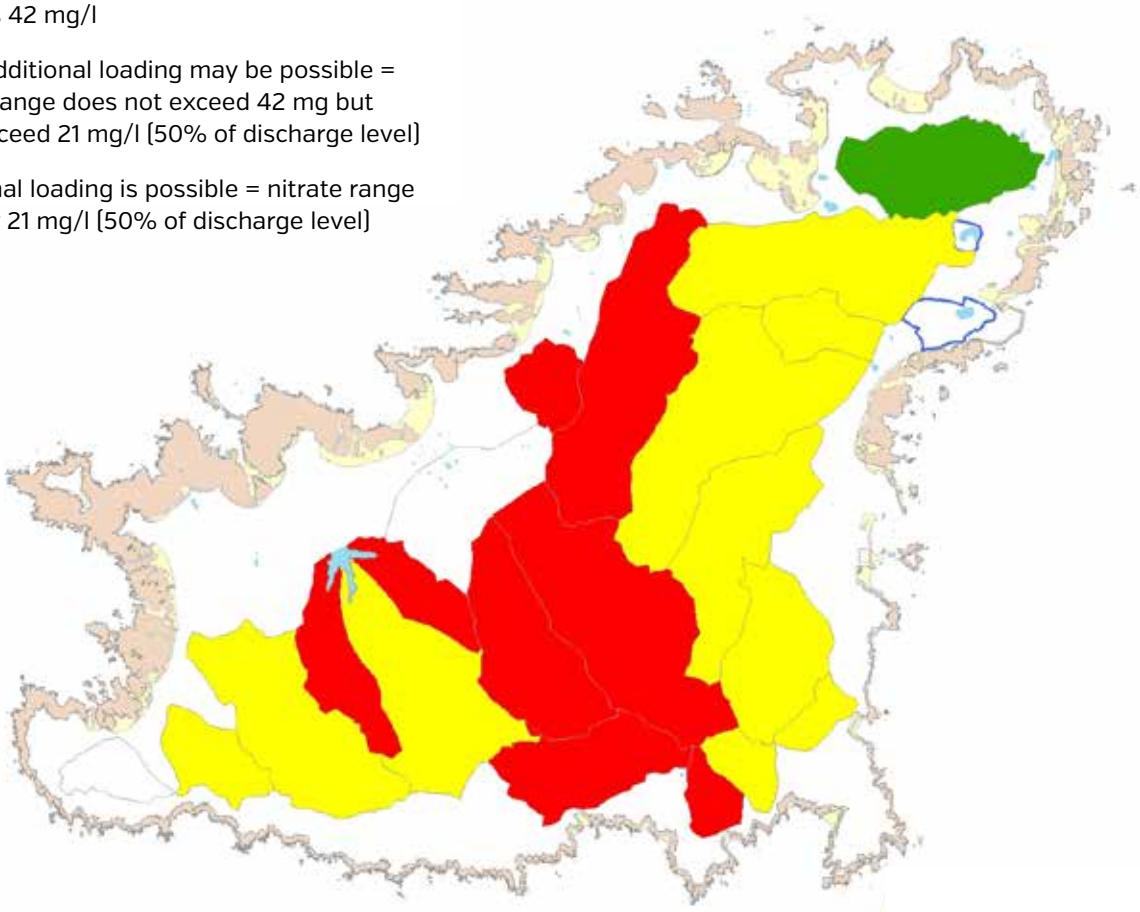
The 2018 nitrate loadings have been evaluated to produce a nitrate map showing the level of nitrates in each catchment area.

The Director of Environmental Health and Pollution Regulation submitted discharge standards for inclusion within Part VI of The Environmental Pollution (Guernsey) Law, 2004, to the States of Guernsey in Billet d'Etat XX1 2012 (dated 31st October 2012) and the proposed nitrate discharge level is recommended at 42 mg/l* (as NO3). The nitrate drinking water limit as prescribed in The Water Supply (Water Quality) Regulations 2000, as amended, is set at 50 mg/l.

No additional loading = nitrate range exceeds 42 mg/l

Some additional loading may be possible = nitrate range does not exceed 42 mg but does exceed 21 mg/l (50% of discharge level)

Additional loading is possible = nitrate range is below 21 mg/l (50% of discharge level)



*this lower level has been set to ensure that nitrate loadings decrease over time.

Table 18: Quality of water in Island streams – Nitrate

Catchment Area	5th Percentile (mg/L)	Mean (mg/L)	95th Percentile (mg/L)
Beau Vallee	11.5	26.1	33.6
Charroterie	15.7	24.8	29.8
Choffins	32.2	74.8	55.9
Cobo	28.2	56.1	75.0
Douit du Moulin	28.3	33.3	38.1
Fauxquets	29.8	57.6	68.5
Fermain	21.5	32.4	38.0
Les Clercs	13.9	24.3	31.5
Les Nicolles	2.8	10.4	21.7
Marais Stream	1.3	9.1	25.7
Mare De Carteret	16.1	26.6	50.6
Moulin Huet	11.7	27.8	36.7
Padins	16.0	35.5	46.1
Petit Bot	15.5	35.7	50.5
Saints	19.2	31.8	50.9
Talbots	20.6	38.8	46.1
Vale Pond	5.5	13.8	24.4
Vielle Marais	1.4	5.1	11.6
Vrangue	13.5	23.1	29.5

APPENDIX A

Table 19: Listed parameters Guernsey Water samples for and prescribed concentrations of values

Bacteriology Parameter	Prescribed Concentration or Value
Clostridium perfringens	0 number/100ml
Coliforms	0 number/100ml
Colony Count cfu /mL 22°C / 72 hr	No abnormal change
Cryptosporidium	oocyst >1 in 10 litres
E. coli	0 number/100ml
Enterococci	0 number/100ml

Chemistry Parameter	Prescribed Concentration or Value
1,2-Dichloroethane	3 µg/L
Aluminium	200 µg/L Al
Ammonium	0.5 mg/L NH_4
Antimony	5 µg/L Sb
Arsenic	10 µg/L As
Benxo(a)pyrene	0.01 µg/L
Benzene	1 µg/L
Boron	1000 µg/L B
Bromate	10 µg/L $Br0_3$
Cadmium	5 µg/L Cd
Chloride	250 mg/L Cl
Chromium	50 µg/L Cr
Colour	20 mg/L Pt/Co
Conductivity	2500 µS/cm
Cyanide	50 µg/L CN
Fluoride	1.5 mg/L F
Iron	200 µg/L Fe
Manganese	50 µg/L Mn
Mercury	1 µg/L Hg
Nitrate	50 mg/L N03
Nitrate / Nitrite Formula	1 mg/L NO_2
Nitrite (treatment works)	0.1 mg/L NO_2
Nitrite (consumers' tap)	0.5 mg/L NO_2
Organoleptic Odour	3 at 25°C dilution number
Organoleptic Taste	3 at 25°C dilution number

Chemistry Parameter	Prescribed Concentration or Value
PAH Total	0.1 µg/L
pH	6.5 - 10.0
Radioactivity - Gross alpha	0.5 Bq/L
Radioactivity - Gross beta	1 Bq/L
Radon	100 Bq/L
Residual Disinfectant - Free Chlorine mg/L	No abnormal change
Residual Disinfectant - Total Chlorine mg/L	No abnormal change
Selenium	10 µg/L Se
Sodium	200 mg/L Na
Sulphate	250 mg/L SO_4
Tetra/Trichloroethene	10 µg/L
Tetrachloromethane	3 µg/L
THMs Total	100 µg/L
Total Organic Carbon (TOC) mg/L C	No abnormal change
Tritium	100 Bq/L
Turbidity (treatment works)	1 NTU
Turbidity (consumer's tap)	4 NTU

Pesticides	
Aldrin	0.03 µg/L
Dieldrin	0.03 µg/L
Heptachlor	0.03 µg/L
Heptachlor epoxide	0.03 µg/L
Individual Pesticides	0.1 µg/L
Total Pesticides	0.5 µg/L

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