

Water Quality Report 2011

Sampling under The Water Supply (Water Quality) Regulations, 2000, as amended



Written by:

**Nathan C Silk BSc (Hons) CBiol MSB Tech IOSH MCIWEM C.WEM CEnv CSci
Compliance Manager**

SUMMARY...

Tests taken from Guernsey Water's 4 treatment works, 3 service reservoirs, water tower and customers' taps in 3 water supply zones show that 99.75 per cent of the 7,315 analyses met all national and European Union standards. This shows no change compared to the 2010 overall compliance, which was also 99.75 per cent, however one less breach was recorded but the overall number of analyses carried out was down by 395 in 2011.

Even though Guernsey Water is not regulated for water quality, the standard by which water quality is measured is taken from England and Wales in the form of The Water Supply (Water Quality) Regulations, 2000, as amended. The regulations set out the parameters to be analysed for (Appendix A) and the required frequency of testing.

In 2011 there were 2 breaches for turbidity in samples taken from water treatment works (Longue Hougue and St Saviours) due to kalic (liquid lime) deposits in sampling pipework being flushed out prior to sampling affecting the sample result. On-line monitoring and investigatory samples confirmed water leaving the works was not affected.

Measures to improve bacterial quality of the Island's service reservoirs had a positive effect, however the failure of the booster chlorination system to run continuously led to 7 bacterial (5 coliform and 2 *E.coli*) failures. In particular, No.2 West service reservoir has been out of service since October when *E.coli* contamination was reported. After thorough inspection, the roof was believed to have allowed water infiltration. The roof has been covered with a sprayed coating to ensure the service reservoirs integrity. The process of re-covering service reservoirs is also being rolled out to the other service reservoirs and treated water tanks used by Guernsey Water.

Supply zones (customer tap samples) had 9 failures in total; 3 coliform failures, 5 THM failures and 1 iron failure. The resample of the coliform failures were found to be clear and the coliform contamination had most probably come from the tap itself. The 5 THM failures were in two water supply zones as a result of booster chlorination from service reservoirs. TOC levels in water leaving water treatment works and higher summer water temperatures assist in the formation of THM's in supply. Measures are being taken to reduce TOC leaving the water treatment works by optimising coagulant dosing to achieve a TOC level of below 3 mg/l. 1 iron failure was observed which was attributed to iron sediment from the supply network. Guernsey Water has relined iron pipes to reduce iron issues but a number of iron tee's are still present in the distribution system, although targeted flushing has reduced the occurrence of iron sediments in the system.

Guernsey Water regularly analyses for 83 pesticides and of these only 9 were detected and no breaches of the 0.1 µg/l limit were observed.

Perflourooctane sulphonate (PFOS) has been monitored on a weekly basis both in the raw water in St Saviours Reservoir and treated water leaving St Saviours water treatment works. All treated water analysis results were below 1 µg/l (ppb) which is within tier 2 of the guidance issued by the Drinking Water Inspectorate (DWI) on PFOS.

There were 80 water quality complaints from customers in 2011, compared to 144 in 2010. The majority of these were due to an earthy taste from Longue Hougue water treatment works. In 2010, the majority of complaints related to discoloration from iron sediment. To achieve a reduction from 60 iron complaints in 2010 to only 16 in 2011 proves the preventative measures put in place have been effective.

Nathan C Silk
Compliance Manager

27th January 2011

CONTENTS...

Summary	2
Content	3
Introduction	4
Treated Water 2011 Data Summary Tables for Guernsey Water	6
Table 1: Quality of water leaving treatment works – European Standards	6
Table 2: Quality of water leaving treatment works – National Standards	6
Table 3: Quality of water leaving treatment works – Additional Monitoring Requirements	7
Table 4: Quality of water leaving service reservoirs – National Standards	7
Table 5: Quality of water leaving service reservoirs – Additional Monitoring Requirements	7
Table 6: Quality of water leaving bulk supply points – European Standards	8
Table 7: Quality of water leaving bulk supply points – National Standards	9
Table 8: Quality of water leaving bulk supply points – Additional Monitoring Requirements	9
Table 9: Quality of water at consumer's tap (zones) – European Standards	10
Table 10: Quality of water at consumer's tap (zones) – National Standards	11
Table 11: Quality of water at consumer's tap (zones) – Additional Monitoring Requirements	11
Raw Water 2011 Data Summary Tables for Guernsey Water	12
Table 12: Quality of water in Island streams – Monitoring	12
Table 13: Quality of stored water in quarries and reservoirs – Monitoring	13
Perfluorooctane sulfonate (PFOS)	14
Table 14: Quality of water leaving treatment works – PFOS	14
Table 15: Quality of stored water in St Saviours Reservoirs – PFOS	14
Table 16: Quality of water in Island streams – PFOS	14
2011 Water Catchment Area Nitrate Loadings	15
Figure 1 – 2011 Nitrate Loadings	15
Table 17: Quality of water in Island streams – Nitrate	16
Conclusion	17
Appendix A	18
Table 18: Listed parameters Guernsey Water samples for and prescribed concentrations or values	18

INTRODUCTION...Treated Water

Guernsey Water operates using current Drinking Water Inspectorate regulations and guidance as best practice. This poses a high level of duty of care on Guernsey Water, but without any regulator value. Guernsey Water has 4 treatment works (2 in service and 2 standby plants), 3 service reservoirs, a water tower and 3 water supply zones.

The general rationale of water movement in Guernsey is: St Saviours water treatment works supplies water to No.2 East and West which then either goes into the Water Tower and onto the Tower Supply Zone or direct to No.2 Supply Zone. Longue Hougue water treatment works (or Juas water treatment works when Longue Hougue is off line) supplies water direct into Longue Hougue Supply Zone and onto Frie Plaidy Service Reservoir.

Below is a breakdown of the compliance for 2011, as measured against The Water Supply (Water Quality) Regulations, 2000, as amended :-

Water Treatment Works

	St Saviours	Juas	Kings Mills	Longue Hougue	Total
No of Breaches	1	0	0	1	2
No of Passes	2417	358	0	2066	4841
No of Samples	2418	358	0	2067	4843
% Compliance	99.96%	100%	0.00%	99.95%	99.96%

Service Reservoirs & Water Tower

	No.2 East	No. 2 West	Frie Plaidy	Tower	Total
No of Breaches	2	4	0	1	7
No of Passes	204	110	208	205	727
No of Samples	206	114	208	206	734
% Compliance	99.03%	96.49%	100%	99.51%	99.05%

Supply Zones

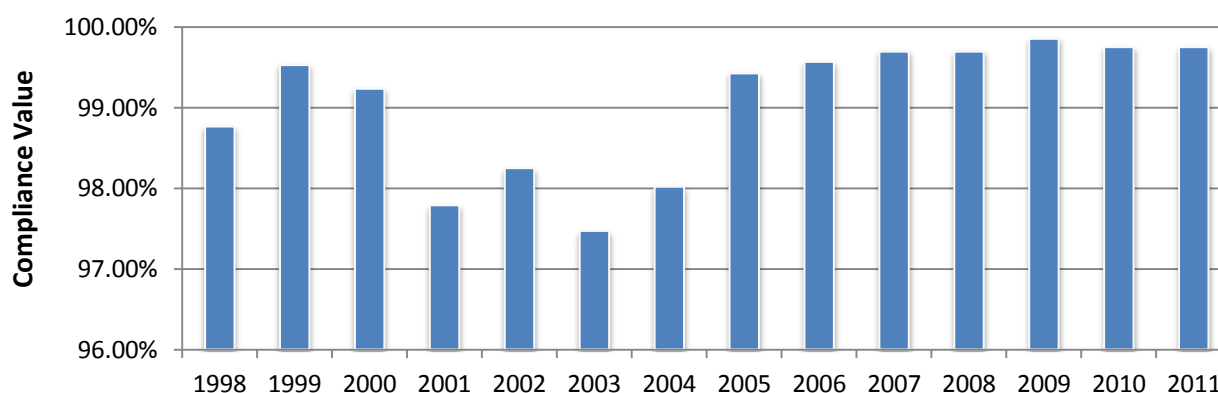
	Longue Hougue Zone	No.2 Zone	Tower Zone	Total
No of Breaches	2	3	4	9
No of Passes	765	474	490	1729
No of Samples	767	477	494	1738
% Compliance	99.74%	99.37%	99.19%	99.48%

Overall Total

	Total
No of Breaches	18
No of Passes	7297
No of Samples	7315
% Compliance	99.75%

The graph below shows the historic trend of total compliance since the introduction of compliance sampling (sampling in line with The Water Supply (Water Quality) Regulations 2000, as amended which started in 2005).

Guernsey Water's Overall Compliance



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 controls the legislation concerning pollution of this area. This has meant poor water quality that could potentially have an effect on the quality of drinking water has been largely avoided through strict limits on discharges to the environment. This current function will be moved to Environmental Heath as a result of Guernsey Water now working closely with the Island's wastewater function.

Raw water quality is closely monitored with analysis of 21 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 the best possible water is supplied to our customers.

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

Tables 12 and 13 show the raw water quality that was observed in 2011 in the Island's various streams and storage reservoirs.

TREATED WATER 2011 DATA SUMMARY TABLES FOR GUERNSEY WATER...

These tables contain a summary of results of treated water monitoring undertaken by Guernsey Water in 2011.

Notes relating to the interpretation of the tables: -

Columns on the following tables that are headed '1 percentile representing a minimum' and '99 percentile representing a maximum' contain figures for the 1 percentile and 99 percentile sample results respectively except where less than 100 samples were taken, when the figures are the actual maximum and minimum results.

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 – European Standards

Parameter	Prescribed Concentration or Value	Total number of tests	Tests failed	1percentile (representing a minimum)	99 percentile (representing a maximum)	No. of works with failures
Nitrite	0.1 mg NO ₂ /l	103	0	<0.03	<0.03	0
TOTAL	-	103	0	-	-	-

Table 2: Quality of water leaving treatment works – National Standards

Parameter	Prescribed Concentration or Value	Total number of tests	Tests failed	1percentile (representing a minimum)	99 percentile (representing a maximum)	No. of works with failures
Coliform Bacteria	0 number/100ml	503	0	0	0	0
Cryptosporidium	oocysts >1 in 10 litres	16	0	-	-	0
<i>E. coli</i>	0 number/100ml	503	0	0	0	0
TOTAL	-	1022	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	1percentile (representing a minimum)	99 percentile (representing a maximum)
Colony Counts After 3 Days At 22°C	No abnormal change	503	n/a	0	3
Colony Counts After 48 Hours At 37°C	No abnormal change	505	n/a	0	3
Residual Disinfectant - Free	No abnormal change	500	n/a	0.05	0.35
Residual Disinfectant - Total	No abnormal change	500	n/a	0.15	0.50
Turbidity	1 NTU	494	2	0.02	0.53
TOTAL	-	2502	2	-	-

Table 4: Quality of water leaving service reservoirs – National Standards

Parameter	Prescribed Concentration or Value	Total number of tests	Tests failed	1percentile (representing a minimum)	99 percentile (representing a maximum)	No. of reservoirs failing standard
Coliform Bacteria	0 number/100ml	185	5	0	1	3
<i>E. coli</i>	0 number/100ml	185	2	0	1	1
TOTAL	-	370	7	-	-	-

Table 5: Quality of water leaving service reservoirs – Additional Monitoring Requirements

Indicator Parameter	Prescribed Concentration or Value	Total number of tests	Tests Exceeding Specification	1percentile (representing a minimum)	99 percentile (representing a maximum)
Colony Counts After 3 Days At 22°C	No abnormal change	185	n/a	0	295
Colony Counts After 48 Hours At 37°C	No abnormal change	185	n/a	0	3
Residual Disinfectant - Free	No abnormal change	182	n/a	<0.05	0.05
Residual Disinfectant - Total	No abnormal change	182	n/a	<0.05	0.23
TOTAL	-	734	-	-	-

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

Parameter	Prescribed Concentration or Value	Total number of tests	Tests failed	1percentile (representing a minimum)	99 percentile (representing a maximum)	No. of supply points with failures
1,2 Dichloroethane	3 µg/l	16	0	<0.12	<0.12	0
Benzene	1 µg/l	16	0	<0.07	0.098	0
Boron	1 mg B/l	16	0	0.00004	0.00011	0
Bromate	10 µg BrO ₃ /l	16	0	0.5	8.9	0
Cyanide	50 µg CN/l	16	0	<0.003	0.012	0
Fluoride	1.5 mg F/l	16	0	<0.1	0.13	0
Mercury	1 µg Hg/l	16	0	<0.002	0.100	0
Tetrachloroethene/Trichloroethene	10 µg/l	16	0	<0.07	<0.09	0
Pesticides (Atrazine)	0.1 µg/l	16	0	0.004	0.008	0
Pesticides (Chlortoluron)	0.1 µg/l	16	0	0.006	0.011	0
Pesticides (Diuron)	0.1 µg/l	16	0	0.005	0.006	0
Pesticides (Hexachlorocyclohexane (gamma))	0.1 µg/l	16	0	0.013	0.034	0
Pesticides (Linuron)	0.1 µg/l	16	0	0.018	0.019	0
Pesticides (MCPA)	0.1 µg/l	16	0	0.017	0.017	0
Pesticides (Mecoprop)	0.1 µg/l	16	0	0.011	0.014	0
Pesticides (Propiconazole)	0.1 µg/l	16	0	0.006	0.009	0
Pesticides (Tebuconazole)	0.1 µg/l	16	0	0.003	0.003	0
Pesticides - Total Substances	0.5 µg/l	16	0	0.004	0.039	0
TOTAL	-	288	0	-	-	-

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

Parameter	Prescribed Concentration or Value	Total number of tests	Tests failed	1percentile (representing a minimum)	99 percentile (representing a maximum)	No. of supply point with failures
Tetrachloromethane	3 µg/l	16	0	<0.07	<0.07	0
TOTAL	-	16	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	1percentile (representing a minimum)	99 percentile (representing a maximum)
Chloride	250 mg Cl/l	17	0	82	99
<i>Clostridium perfringens</i>	0 number/100ml	104	0	0	0
Conductivity	2500 µS/cm	102	0	516	690
Radioactivity - Gross Alpha	0.1 Bq/l	16	0	<0.0248	0.0330
Radioactivity - Gross Beta	1 Bq/l	16	0	0.098	0.206
Radioactivity - Tritium	100 Bq/l	16	0	<10	<10
Sulphate	250 mg SO ₄ /l	16	0	69	120
Total Organic Carbon (TOC)	No abnormal change	495	n/a	2.5	4.6
TOTAL	-	782	0	-	-

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

Parameter	Prescribed Concentration or Value	Total number of tests	Tests failed	1percentile (representing a minimum)	99 percentile (representing a maximum)	No. of zones with failures
Antimony	5 ug Sb/l	23	0	0.25	1.40	0
Arsenic	10 ug As/l	23	0	0.02	0.50	0
Benzo(a)pyrene	0.01 µg/l	19	0	<0.0005	<0.0005	0
Cadmium	5 ug Cd/l	23	0	<0.02	0.04	0
Chromium	50 ug Cr/l	23	0	0.15	0.50	0
Copper	2 mg Cu/l	24	0	<0.01	0.466	0
<i>E. coli</i>	0 number/100ml	158	0	0	0	0
Enterococci	0 number/100ml	23	0	0	0	0
Lead	25 µg Pb/l	24	0	<5	<5	0
Nickel	20 µg Ni/l	23	0	0.5	4.8	0
Nitrate	50 mg NO ₃ /l	24	0	15.8	34.3	0
Nitrite	0.5 mg NO ₂ /l	24	0	<0.03	<0.03	0
Nitrate/Nitrite Formula	1mg NO ₂ /l	24	0	0.326	0.696	0
Polycyclic aromatic hydrocarbons (PAHs)	0.1 µg/l	19	0	0	0.00324	0
Selenium	10 µg Se/l	23	0	0.25	0.58	0
Trihalomethanes (THMs)	100 µg/l	23	5	22	132.45	2
TOTAL	-	500	5	-	-	-

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

Parameter	Prescribed Concentration or Value	Total number of tests	Tests failed	1percentile (representing a minimum)	99 percentile (representing a maximum)	No. of zones with failures
Aluminium	200 µg Al/l	80	0	18	138	0
Colour	20 mg/l Pt/Co scale	84	0	<5	<5	0
Hydrogen ion (pH)	6.5 - 10 pH value	84	0	6.81	7.77	0
Iron	200 µg Fe/l	84	1	<10	2000	0
Manganese	50 µg Mn/l	84	0	<10	18	0
Organoleptic Odour	3 at 25°C dilution number	82	0	n/a	n/a	0
Organoleptic Taste	3 at 25°C dilution number	81	0	n/a	n/a	0
Sodium	200 mg Na/l	24	0	54	69	0
Turbidity	4 NTU	84	0	0.01	0.24	0
TOTAL	-	687	1	-	-	-

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	1percentile (representing a minimum)	99 percentile (representing a maximum)
Ammonium	0.5 mg NH ₄ /l	84	0	<0.01	0.05
Coliform Bacteria	0 number/100ml	158	3	0	1
Colony Counts After 3 Days At 22°C	No abnormal change	85	n/a	0	182
Colony Counts After 48 Hours At 37°C	No abnormal change	85	n/a	0	28
Conductivity	2500 uS/cm	84	0	515	672
Hydrogen ion (pH)	<9.5 pH value	84	0	6.81	7.77
Residual Disinfectant - Free	No abnormal change	84	n/a	<0.05	0.05
Residual Disinfectant - Total	No abnormal change	84	n/a	<0.05	0.30
TOTAL	-	748	3	-	-

RAW WATER 2011 DATA SUMMARY TABLES FOR GUERNSEY WATER...

These tables contain a summary of results of raw water monitoring undertaken by Guernsey Water in 2011.

Notes relating to the interpretation of the tables: -

Columns on the following tables that are headed '1 percentile representing a minimum' and '99 percentile representing a maximum' contains figures for the 1 percentile and 99 percentile sample results respectively except where less than 100 samples were taken, when the figures are the actual maximum and minimum results.

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 Result	Maximum Result
Hydrogen ion (pH)	pH value	1,061	6.06	8.87
Conductivity	uS/cm	1,060	183	1,940
Potassium	mg K/l	1,059	2	171
Nitrate	mg NO ₃ /l	1,061	0.9	391
Ammonium	mg NH ₄ /l	1,061	<0.01	2.60
Nitrite	mg NO ₂ /l	1,061	<0.03	11
Phosphate	mg P/l	1,061	<0.02	10
Chloride	mg Cl/l	1,061	20	420
TOC	mg C/l	1,037	1	57
Coliform Bacteria	number/100ml	249	50	<100,000
E.coli	number/100ml	249	10	<100,000
Faecal streptococci	number/100ml	249	0	<13,500
TOTAL	-	10,269	-	-

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

Indicator Parameter	Units of Measure	Total number of tests	Minimum Result	Maximum Result
Hydrogen ion (pH)	pH value	169	6.60	9.98
Conductivity	uS/cm	169	6.20	1,044
Ammonium	mg NH ₄ /l	169	<0.01	1.70
Nitrate	mg NO ₃ /l	169	<0.5	90.4
Nitrite	mg NO ₂ /l	169	0.03	0.60
Phosphate	mg P/l	168	<0.02	28
Chloride	mg Cl/l	169	49	178
Potassium	mg K/l	169	3.9	15.6
Silicate	mg SiO ₂ /l	169	2.0	18.5
TOC	mg C/l	169	2.2	19.4
TOTAL	-	1,689	-	-

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 Saviours water treatment works. The Tables below provide a breakdown of the levels of PFOS observed in 2011 in drinking water from St Saviours 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	1percentile (representing a minimum)	99 percentile (representing a maximum)
Perfluorooctane sulfonate (PFOS)	1.0 µg C ₈ HF ₁₇ O ₃ S/l	50	0	0.20	0.90
TOTAL	-	50	0	-	-

Table 15: Quality of stored water in St Saviours Reservoirs – PFOS

Indicator Parameter	Units of Measure	Total number of tests	Minimum Result	Maximum Result
Perfluorooctane sulfonate (PFOS)	µg C ₈ HF ₁₇ O ₃ S/l	49	0.27	0.97
TOTAL	-	49	-	-

Table 16: Quality of water in Island streams – PFOS

Indicator Parameter	Units of Measure	Total number of tests	Minimum Result	Maximum Result
Perfluorooctane sulfonate (PFOS)	µg C ₈ HF ₁₇ O ₃ S/l	118	<0.2	6.9
TOTAL	-	118	-	-

2011 WATER CATCHMENT AREA NITRATE LOADINGS...

The 2011 nitrate loadings have been evaluated to produce a nitrate map showing the level of nitrates in each catchment area.

Samples are taken from each catchment area every week and this data has been statistically analysed to give the range of 90% of the samples (the top and bottom 5% have been removed as outliers from the observed range).

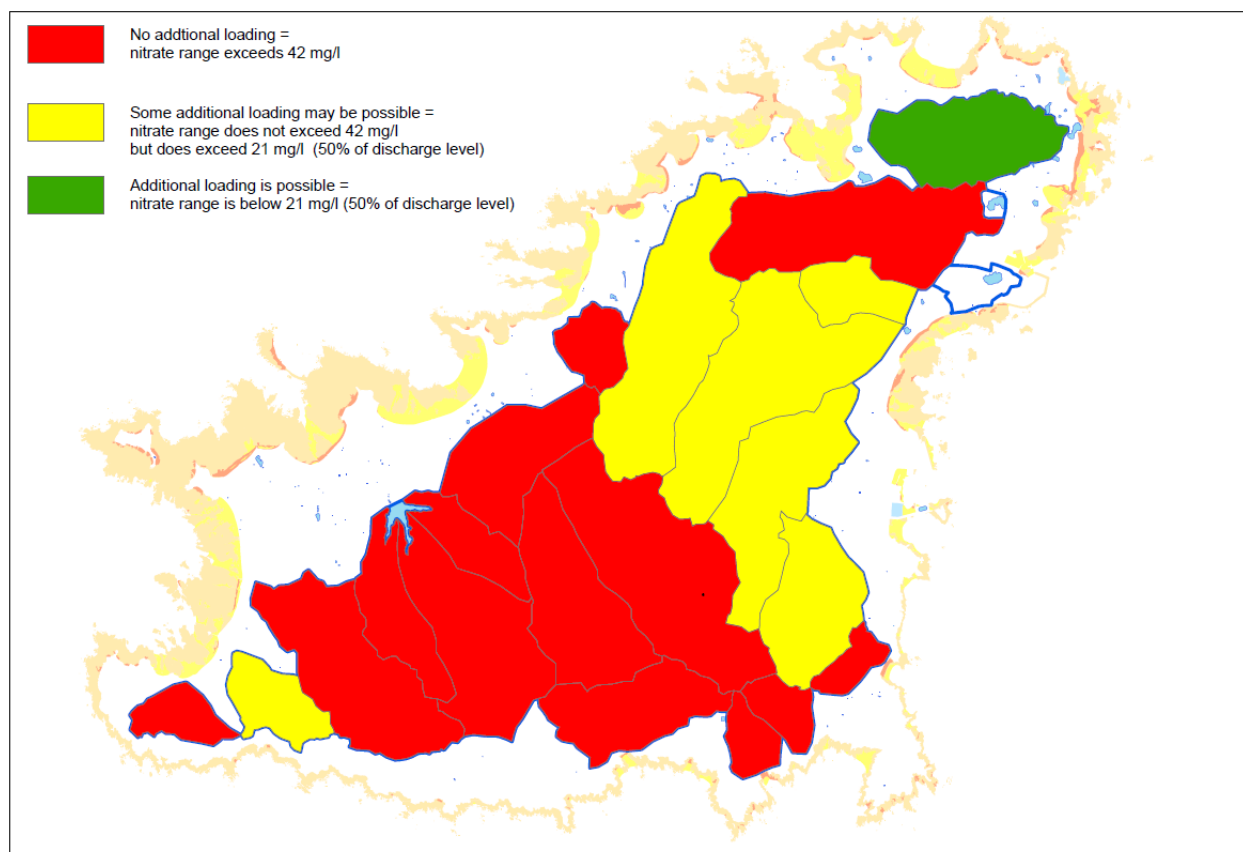
Guernsey Water has produced discharge standards for inclusion within Part VI of The Environmental Pollution (Guernsey) Law, 2004 and the proposed nitrate discharge level is recommended at 42 mg/l (as NO_3). The nitrate drinking water limit as prescribed in The Water Supply (Water Quality) Regulations 2000, as amended is set at 50 mg/l.

To evaluate the ranges the following methodology was followed: -

- No additional loading = nitrate range exceeds 42 mg/l
- Some additional loading may be possible = nitrate range does not exceed 42 mg/l 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)

Figure 1 is the 90%ile data range and on the right is the map showing the colour coded catchment areas.

Figure 1 – 2011 Nitrate Loadings



GUERNSEY NITRATE LOADING (CATCHMENT) 2011

Table 17: Quality of water in Island streams – Nitrate

2011 Water Catchment Area Nitrate Loadings		
CATCHMENT AREA	5%ILE (MG/L)	95%ILE (MG/L)
Beau Valet	21.8	49.4
Charroterie	13.5	32.7
Choffins	59.5	81.9
Cobo	37.4	82.5
Fauxquets	45.3	77
Fermain	27.4	47.6
Grande Mare	17.1	64.6
Les Arquets	22.8	49.4
Les Clercs	18.1	40.6
Marais Sump	1.8	28.4
Marais Stream	11.3	35.2
Mare de Carteret	3.9	38.3
Moulin Huet	31.6	50.2
Old Marais	1	7.4
Padins	25.2	48.8
Petit Bot	31.9	52.4
Pleinmont East	20	48.2
Pleinmont West	23.5	47.1
Saints	33.4	46.2
Talbots	32.5	76.6
Vale Pond	11.8	47.5
Vrangue	13.4	38.2

CONCLUSION...

Guernsey Water's mission:

"To deliver to its customers a reliable supply of high quality drinking water in sufficient quantities that satisfy normal daily demand at the lowest cost, consistent with meeting a high level of customer service and confidence."

In 2011, Guernsey Water provided 4,713 megalitres of water (over 4 times the volume of St Saviours Reservoir) to its customers.

The quality of water supplied with 99.75% of 7,315 analyses meeting the prescribed standards is excellent. 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 society. 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.

2011 Water Quality Key Performance Indicators

- **Achieve 99.5% compliance for Maximum Admissible Concentrations at WTW's**
- **Achieve 98% compliance for Maximum Admissible Concentrations at service reservoirs**
- **Achieve 99% compliance for MAC at customer taps**



APPENDIX A...

Table 18: Listed parameters Guernsey Water samples for and prescribed concentrations or values

Parameter	Prescribed Concentration or Value
Bacteriology	
<i>Clostridium perfringens</i>	0 number/100ml
Coliform Bacteria	0 number/100ml
Colony Counts After 3 Days At 22°C	No abnormal change
Colony Counts After 48 Hours At 37°C	No abnormal change
Cryptosporidium	oocyst >1 in 10 litres
<i>E. coli</i>	0 number/100ml
Enterococci	0 number/100ml
Chemistry	
1,2 Dichloroethane	3 µg/l
2,3,6-Tba	0.1 µg/l
2,4,5-TCA	0.1 µg/l
2,4-Db	0.1 µg/l
2-4,D	0.1 µg/l
Aldrin	0.03 µg/l
Aluminium	200 µg Al/l
Ammonium	0.5 mg NH ₄ /l
Antimony	5 µg Sb/l
Arsenic	10 µg As/l
Atrazine	0.1 µg/l
Azinphos-methyl	0.1 µg/l
Benazolin	0.1 µg/l
Bentazone	0.1 µg/l
Benzene	1 µg/l
Benzo(a)pyrene	0.01 µg/l
Boron	1 mg B/l
Bromate	10 µg BrO ₃ /l
Bromoxynil	0.1 µg/l
Cadmium	5 µg Cd/l
Carbetamide	0.1 µg/l
CarbophenothiOn	0.1 µg/l
Chlordane (cis)	0.1 µg/l
Chlordane (trans)	0.1 µg/l
Chloride	250 mg Cl/l
Chlorofenvinphos	0.1 µg/l
Chloropropham	0.1 µg/l
Chloropyriphos	0.1 µg/l
Chlorothalonil	0.1 µg/l
Chlorotoluron	0.1 µg/l
Chlorthal	0.1 µg/l
Chlorthal di methyl	0.1 µg/l
Chromium	50 µg Cr/l
Clopyralid	0.1 µg/l
Colour	20 mg/l Pt/Co scale

Table 18: continued

Parameter	Prescribed Concentration or Value
Conductivity	2500 µS/cm
Copper	2 mg Cu/l
Cyanazine	0.1 µg/l
Cyanide	50 µg CN/l
D.D.D. Op	0.1 µg/l
D.D.D. Pp	0.1 µg/l
D.D.E. Op	0.1 µg/l
D.D.E. Pp	0.1 µg/l
D.D.T. Op	0.1 µg/l
D.D.T. Pp	0.1 µg/l
Dalapon	0.1 µg/l
Diazinon	0.1 µg/l
Dicamba	0.1 µg/l
Dichloroprop	0.1 µg/l
Dichlorvos	0.1 µg/l
Dieldrin	0.03 µg/l
Diflufenican	0.1 µg/l
Dimethoate	0.1 µg/l
Diuron	0.1 µg/l
Endrin	0.1 µg/l
Fenitrothion	0.1 µg/l
Fluoride	1.5 mg F/l
Fluroxpyr	0.1 µg/l
Heptachlor	0.03 µg/l
Heptachlor epoxide	0.03 µg/l
Heptenophos	0.1 µg/l
Hexachlorocyclohexane alpha	0.1 µg/l
Hexachlorocyclohexane beta	0.1 µg/l
Hexachlorocyclohexane Delta	0.1 µg/l
Hexachlorocyclohexane gamma	0.1 µg/l
Hydrogen ion (pH)	6.5 - 9.5 pH value
Ioxynil	0.1 µg/l
Iprodione	0.1 µg/l
Iron	200 µg Fe/l
Isodrin	0.1 µg/l
Isoproturon	0.1 µg/l
Lead	25 µg Pb/l
Linuron	0.1 µg/l
M.C.P.A.	0.1 µg/l
M.C.P.B.	0.1 µg/l
Malathion	0.1 µg/l
Manganese	50 µg Mn/l
Mecarbam	0.1 µg/l
Mecoprop	0.1 µg/l
Mercury	1 µg Hg/l
Methabenzthiazuron	0.1 µg/l

Table 18: continued

Parameter	Prescribed Concentration or Value
Monolinuron	0.1 µg/l
Nickel	20 µg Ni/l
Nitrate	50 mg NO ₃ /l
Nitrate/Nitrite Formula	1mg NO ₂ /l
Nitrite	0.1 mg NO ₂ /l (treatment works)
Nitrite	0.5 mg NO ₂ /l (consumers' tap)
Organoleptic Odour	3 at 25°C dilution number
Organoleptic Taste	3 at 25°C dilution number
Parathion-ethyl	0.1 µg/l
Pendimethalin	0.1 µg/l
Pentachlorophenol	0.1 µg/l
Perfluorooctane sulphonate (PFOS)	1 µg/l
Perfluorooctanoic acid (PFOA)	10 µg/l
Pesticides: Total	0.5 µg/l
Pirimphos-methyl	0.1 µg/l
Polycyclic aromatic hydrocarbons (PAHs)	0.1 µg/l
Prometryne	0.1 µg/l
Propazine	0.1 µg/l
Propetamphos	0.1 µg/l
Propiconazole	0.1 µg/l
Propyzamide	0.1 µg/l
Radioactivity - Gross Alpha	0.1 Bq/l
Radioactivity - Gross Beta	1 Bq/l
Radioactivity - Tritium	100 Bq/l
Residual Disinfectant - Free	No abnormal change
Residual Disinfectant - Total	No abnormal change
Selenium	10 µg Se/l
Simazine	0.1 µg/l
Sodium	200 mg Na/l
Sulphate	250 mg SO ₄ /l
Tebuconazole	0.1 µg/l
Terbutylazine	0.1 µg/l
Terbutryn	0.1 µg/l
Tetrachloroethene/Trichloroethene	10 µg/l
Tetrachloromethane	3 µg/l
Total Organic Carbon (TOC)	No abnormal change
Triadimefon	0.1 µg/l
Triallate	0.1 µg/l
Triazophos	0.1 µg/l
Trichloroacetic acid	0.1 µg/l
Trichlorophenoxyacetic acid (2,4,5)	0.1 µg/l
Triclopyr	0.1 µg/l
Trietazine	0.1 µg/l
Trihalomethanes (THMs)	100 µg/l
Turbidity	1 NTU (treatment works)
Turbidity	4 NTU (consumers' tap)