

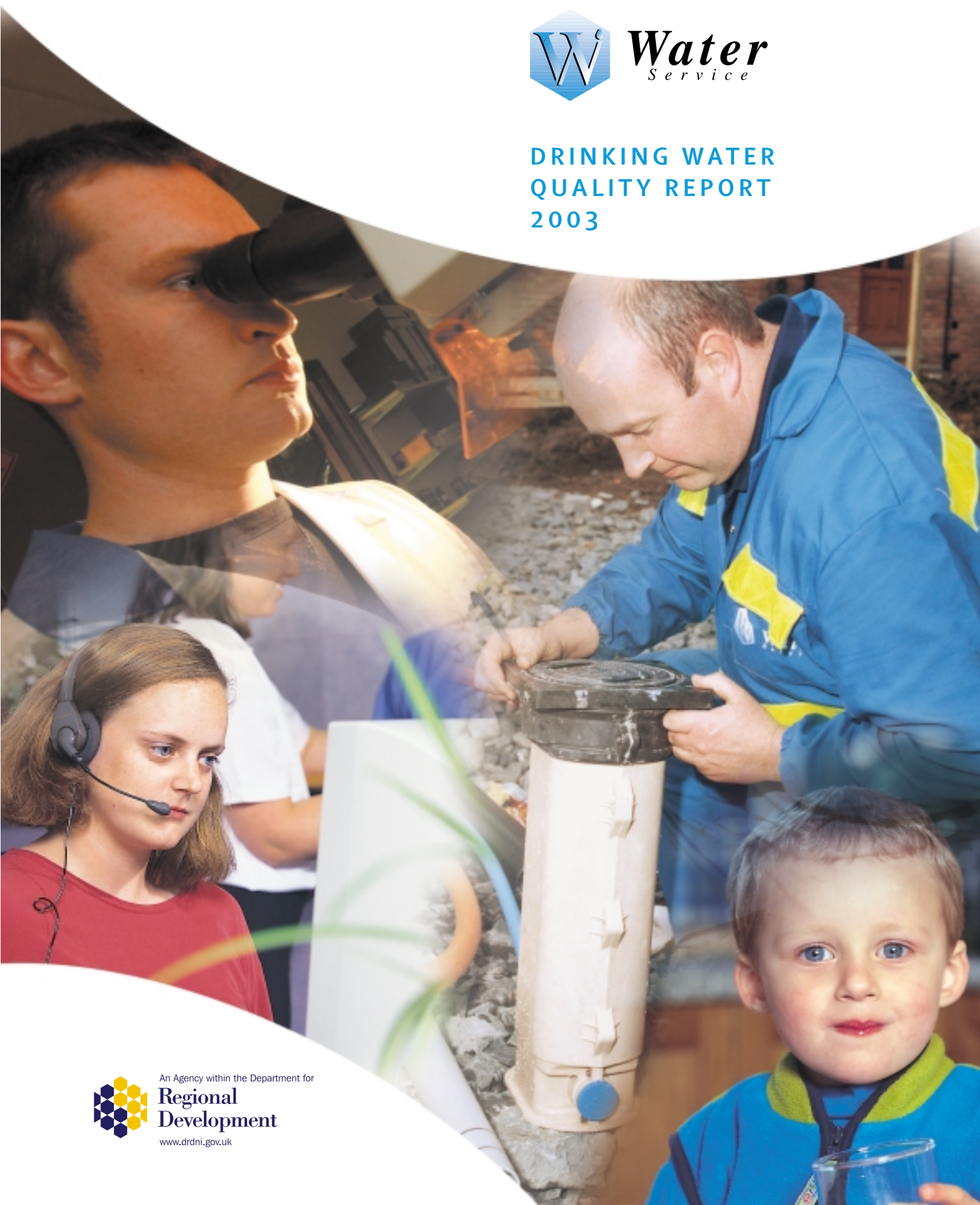


INVESTOR IN PEOPLE



Water
Service

**DRINKING WATER
QUALITY REPORT
2003**



An Agency within the Department for

**Regional
Development**

www.drdni.gov.uk

Foreword

As Chief Executive of Water Service, I am personally committed to the delivery of high quality water to our customers. I am therefore pleased to present the Drinking Water Quality Report for 2003, which illustrates the further improvements made in 2003 with 98.73% compliance measured at the customer tap compared to 98.55% in 2002.

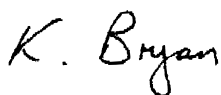
The year ahead sees a change in the standards against which our compliance is measured. The Water Supply (Water Quality) Regulations (NI) 2002, which implement the new EC Drinking Water Directive, took effect on 25 December 2003 and introduced tighter quality standards.

To meet the new demands of these regulations, Water Service is pursuing an extensive programme of capital works investment with a £220 million programme to upgrade the water treatment and distribution systems in the three year period to 2006.

This investment includes the new Mourne Water Treatment Works, a process treating 155 million litres of water per day. Due to be completed later this year, this scheme will lead to further improvements in the quality of water in the Belfast area. Other initiatives throughout the province include new or upgraded water treatment works at Derg, Lough Fea, Lough Macrory, Fofanny, Lough Bradan and Carran Hill.

This year's improvements in compliance and the ongoing investment come at a time when Water Service is going through major organisational changes. I am pleased to announce that Water Reform is being achieved without compromise to water quality.

I hope you find this report informative and interesting, and that you will be assured of Water Service's commitment to maintaining and improving the quality of drinking water delivered to its customers throughout Northern Ireland.



Katharine Bryan
Chief Executive



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Introduction

The Department for Regional Development is responsible under the Water and Sewerage Services (Northern Ireland) Order 1973 to supply and distribute water. Water supplied for domestic or food production purposes, must meet the standards contained in the Water Quality Regulations (Northern Ireland) 1994. The Department exercises its water supply functions through Water Service, which is an Executive Agency within the Department.

Water is regularly monitored and tested for quality. This report summarises Water Service's regulatory results from 1 January 2003 to 31 December 2003. During this reporting period, 98.73% of all tests carried out on samples taken from customers' taps, complied with the regulatory standards.

Water Service aims to provide drinking water, in a cost effective manner, to meet the requirements of existing and future customers and, thereby, contribute to the health and well being of the community and the protection of the environment.

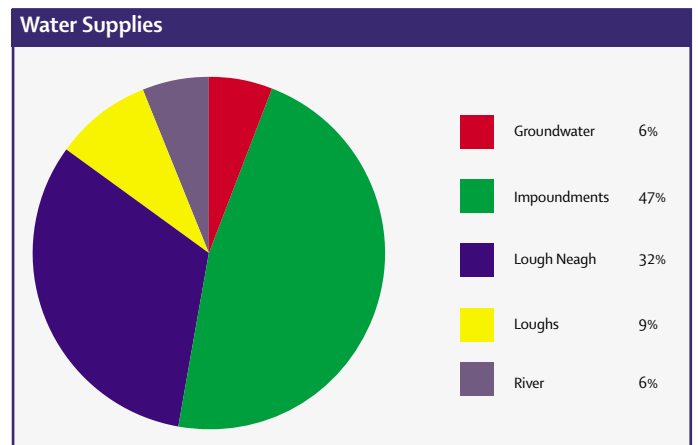
Water Service continues to meet the obligations placed upon it to comply with regulatory standards and the heightened demands from customers' expectations. Investing in the extension and upgrading of water treatment works remains a top priority and the current programme is detailed in Appendix 5.

A higher percentage of the Northern Ireland population, as compared to Great Britain, live in rural areas. As a result there is a greater length of watermain per head of population connected to the public supply, with the length of watermain per head of population served in Northern Ireland estimated at 14.7 metres as compared to 6.2 metres in England and Wales, and 9.0 metres in Scotland.

Sufficiency of Supply

Effective planning for the sufficiency of future water supplies is essential. Water Service has adopted the twin track approach to water resource planning, whereby demand for water is managed through leakage control and other water efficiency measures while at the same time ensuring that the provision of new sources is advanced to a state of readiness.

Water supplies in Northern Ireland are obtained from five types of supply, as shown: -



Drinking Water Quality Standards

“Drinking Water Quality in Northern Ireland is assessed against standards set in the Water Quality Regulations (Northern Ireland) 1994.”

The Water Quality Regulations (Northern Ireland) 1994 (the “Regulations”) fully incorporate the requirements of the European Commission’s Drinking Water Directive 80/778/EEC (the “Directive”) relating to the quality of water intended for human consumption and, for certain parameters, more stringent UK national standards.

The Regulations set out the requirements to be met by Water Service when supplying water for domestic or food production purposes and include: -

- water quality standards for wholesomeness;
- sampling locations for monitoring purposes;
- minimum requirements for the number, frequency and types of water samples to be taken at sampling locations;
- water sample collection and testing regimes;
- maintaining records of water sample results; and
- provision and publication of information.

Water Service assesses standards for water quality against the parameters as listed in Appendix 1. The standards in the Regulations are normally expressed as ‘Prescribed Concentrations or Values’ (PCV) and are generally specified as maximum, minimum, percentile or average concentrations for a particular substance. Standards are set to ensure that water is safe to drink and to make it aesthetically acceptable.

The Directive and the Regulations permit standards to be relaxed in certain specified circumstances provided there is no risk to public health. The circumstance applying in Northern Ireland, stems from the nature and structure of the ground from which the supplies are taken, as the composition of geological strata can affect background levels of substances occurring in water.

Relaxation of standards in Northern Ireland are authorised by the Department of Health, Social Services and Public Safety and administered by the Northern Ireland Drinking Water Inspectorate. The standards that have been relaxed are for taste, odour, colour, aluminium and manganese and apply to the water leaving the water treatment works listed in Appendix 2.

The Water Quality Regulations (Northern Ireland) 1994 set demanding standards for the quality of drinking water but contraventions of these standards do not necessarily imply the water represents any public health risk. All contraventions are followed up by Water Service, and prompt remedial action taken where appropriate.

The European Commission has reviewed the Drinking Water Directive 80/778/EEC in line with advances in knowledge over the past 20 years. The new EC Drinking Water Directive (98/83/EC) was published in the Official Journal of the European Communities on 25th December 1998. Most of the new and revised standards are included in The Water Supply (Water Quality) Regulations (Northern Ireland) 2002, which came into effect on 1st January 2004.

Drinking Water Inspectorate - Technical Audit

A Drinking Water Inspectorate (the "Inspectorate"), established within the Environment and Heritage Service Agency, has an independent responsibility to audit drinking water quality compliance against the standards set in the Regulations.

Each year the Inspectorate undertakes a technical audit of the measures taken by Water Service to comply with the Regulations. The technical audit process includes:

- the transfer, to the Inspectorate, of analytical results of samples taken, throughout the year, from water treatment works, service reservoirs and consumers' taps;
- a compliance assessment of this information against the regulatory standards; and
- carrying out an inspection programme which examines the sampling, analytical, reporting, water treatment, distribution policies and relevant procedures.

In 2003, the technical audit inspection programme included:

- evaluation and implementation of strategies to meet new regulatory requirements;
- audit of two service reservoirs (Dunfane and Dundrum);
- audit of the Derg Water Treatment Works;
- audit of Craigavon Water Quality Laboratory;
- a *Cryptosporidium* risk assessment and monitoring review; and

- progress on agreed follow-up action including non-trivial parameter contraventions, previous inspections and post incident analysis.

The Inspectorate made a number of recommendations and observations and Water Service is following up on these issues. The Drinking Water Inspectorate will report on the inspections and the quality of water supplied by Water Service in its Annual Report, due to be published later in the year. The Inspectorate is located at Commonwealth House, 35 Castle Street, Belfast BT1 1GH.

Incidents

In addition to Drinking Water Inspectorate's audit of drinking water quality, the Inspectorate requires to be notified whenever an incident or event occurs that has the potential to impact on drinking water quality. After investigation these may prove not to have had a detrimental effect on water quality and are classified in the Drinking Water Inspector's Report as "events" as opposed to "incidents".

During 2003, there were 4 notifiable incidents and 1 event.

Water Quality Incidents/Events			
Date	Location	Nature of Incident / Event	Classification
July 2003	Ballydunmaul Road, Randalstown	Burst pipe - 'Boil Notice' issued.	Incident
July 2003	Eagry and Craigpark Service Reservoirs	Bacteriological exceedences - 'Boil Notice' issued.	Incident
September 2003	Craigs Road, Ballymena	Contaminated tap - 'Boil Notice' issued.	Event
September 2003	Caulfield Villas, Moneymore	Burst main - 'Boil Notice' issued.	Incident
October 2003	Conagher Road, Dervock	Pipe replacement - 'Boil Notice' issued.	Incident

Monitoring Drinking Water Quality

The Regulations necessitate an extensive water sampling programme to be undertaken, to monitor water quality throughout the supply and distribution systems.

The sampling locations and frequencies for the monitoring of drinking water quality are specified in the Regulations.

These are audited by the Drinking Water Inspectorate.

The mandatory sampling programme requires water samples to be collected regularly at water treatment works, at service reservoirs and water towers used to store treated water and at customers' taps in the water supply zones.

Samples are carefully collected, handled and transported to ensure that they accurately represent the water quality which customers receive. Water Service employs skilled and experienced sampling staff for the collection and delivery of the regulatory samples to the laboratories. All sampling staff wear uniforms and carry identity cards when they call on customers to take a sample.

Samples collected from customers' taps are taken randomly in each water supply zone. A water supply zone is a designated area of no more than 50,000 population supplied with water by one treatment works or blended water from several works. The number and boundaries of water supply zones are subject to change according to operational requirements, as supply sources to areas are adjusted to meet demand and infrastructure developments. On this basis 97 zones were monitored during the period of this report.

The parameters for which samples are tested include: -

- microbiological, e.g. coliform bacteria;
- physical, e.g. temperature, pH;
- chemical, e.g. iron, manganese, lead and nitrate; and
- aesthetic, e.g. taste, odour and colour.

Compliance with the drinking water standards is determined by comparing the results of laboratory analysis of water samples with the relevant parameter PCV. Where monitoring indicates that a standard has not been met, appropriate immediate investigation and remedial action is undertaken to ensure that the water supply does not present any public health risk. Sampling programmes are adjusted and increased testing is scheduled in the water supply zone for the parameter involved.

Quality Assurance

The Regulations require water quality to be monitored using analytical systems which can demonstrate that appropriate accuracy is achieved and maintained.

Water Service attaches great importance to the integrity of the analysis and for this reason applies stringent laboratory analytical quality control procedures. These systems and procedures are subject to external inspection and audit by the Drinking Water Inspectorate and an assessment of Water Service's performance will be included in the Inspectorate's annual report.

Water Service has achieved the requirements of the Drinking Water Testing Specification, a national scheme agreed between the Drinking Water Inspectorate and the United Kingdom

Accreditation Service for quality assurance within laboratories carrying out analysis for the water industry.

In addition to this, all Water Service Testing Laboratories have attained the necessary standard of analytical excellence and have been awarded UKAS accreditation. UKAS external auditors continuously monitor this accreditation.

The importance of rapid detection of *Cryptosporidium* oocysts has resulted in a *Cryptosporidium* Analytical Unit being established at the Altnagelvin Laboratory. The Unit has Drinking Water Inspectorate approval and is instrumental in the development of new accredited methods for the water industry.



Water Quality Summary

Overall Water Quality

98,922 microbiological, physical and chemical tests were carried out on water samples taken from water treatment works, service reservoirs and customers' taps in the year 2003. 98,230 of these tests complied with the regulatory standards giving an overall compliance of 99.30%.

Microbiological Quality

Microbiological quality standards apply to water leaving water treatment works, water held in service reservoirs and water delivered to customers' taps.

Water leaving water treatment works is disinfected with chlorine to safeguard public health by destroying microorganisms. This is the most important part of the water treatment process and is monitored for effectiveness at water treatment works, service reservoirs and in the distribution system at customers' taps.

To ensure the wholesomeness of water supplied, treated water is regularly examined for total coliforms and faecal coliforms. The presence of these organisms may indicate potential microbiological contamination of water supplies and if they

are detected in drinking water immediate action is taken to identify the source and to minimise any risk to public health.

Many instances of microbiological failure in samples taken from customers' taps are due to contamination of the tap, particularly kitchen taps. For this reason if a positive result is obtained investigations are immediately carried out to identify if the positive result is due to the specific tap or the general system.

A summary of the microbiological quality of water supplied in 2003 is given below and more detailed information is contained in Appendix 3.

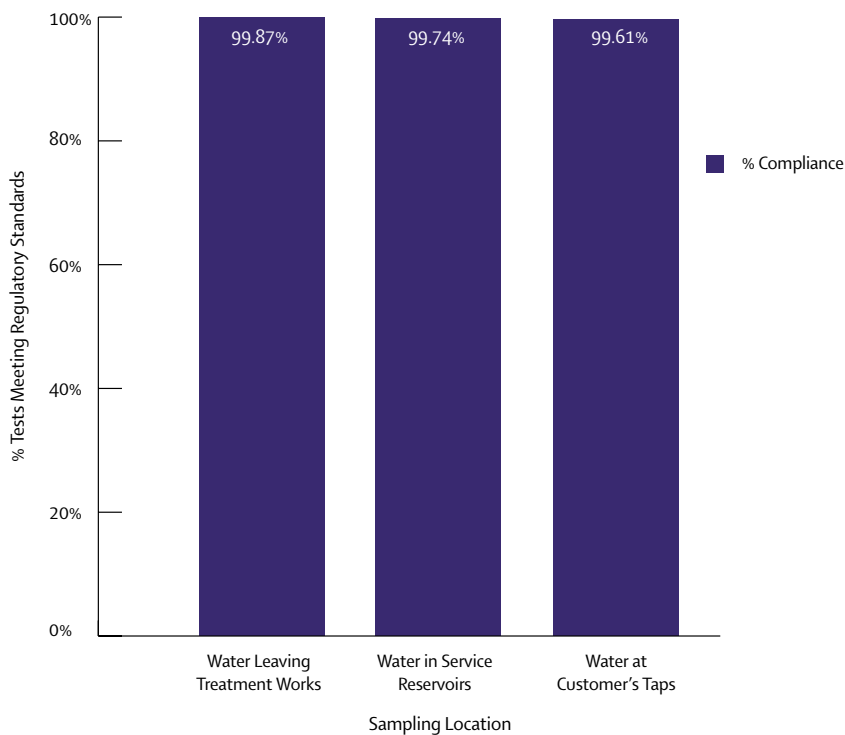
Water Leaving Treatment Works

- 8,553 samples were taken and examined for coliforms. Of these, total coliforms were absent from 99.84% of samples and faecal coliforms from 99.89%.

Water in Service Reservoirs

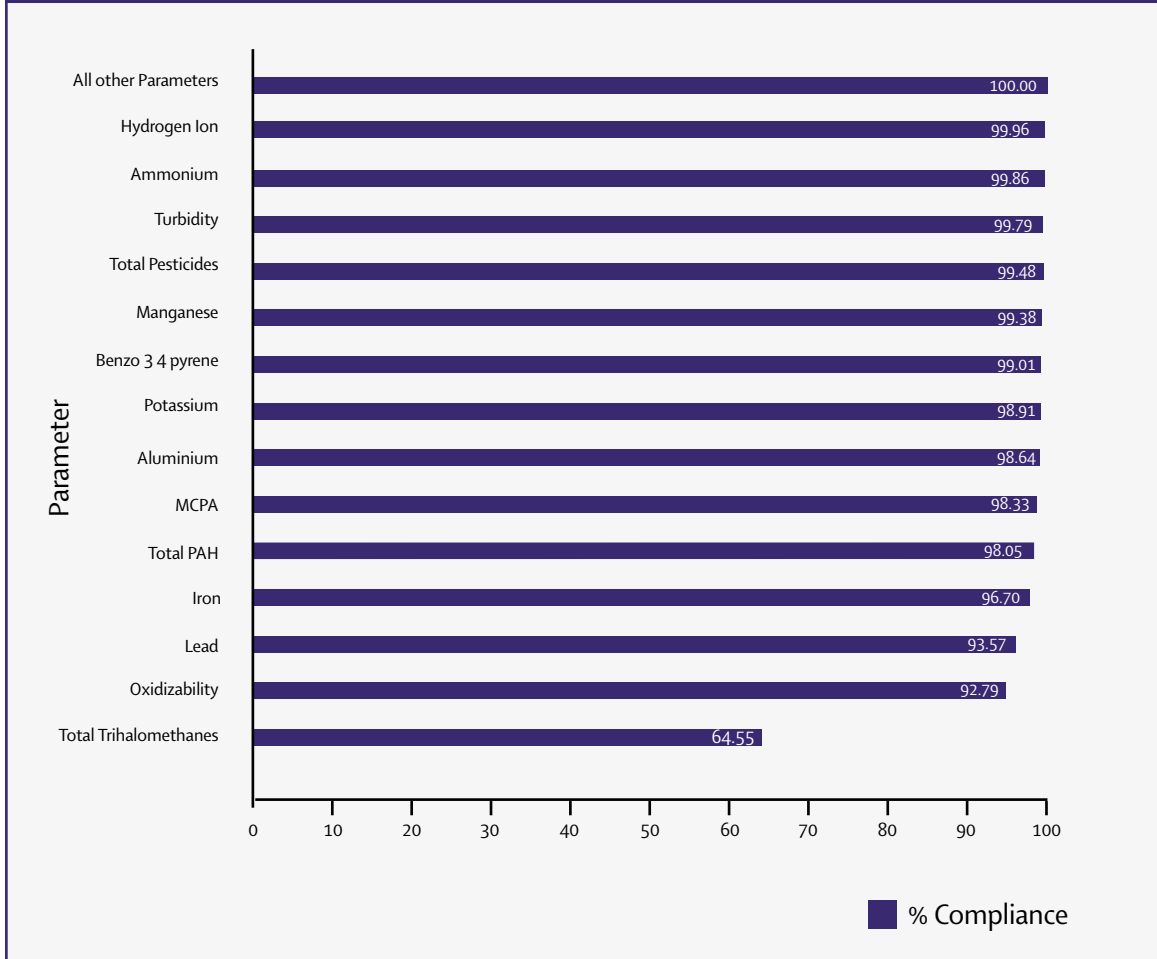
- 18,305 samples were taken and examined for coliforms. Of these, total coliforms were absent from 99.67% of samples and faecal coliforms from 99.81%.





Overall Water Quality				
	Number of Analytical Tests	Number of Tests Exceeding PCV or Relaxed PCV	Number of Satisfactory Tests	% Compliance with Regulatory Standards
WATER LEAVING TREATMENT WORKS				
Total coliform	8553	14	8539	99.84
Faecal coliform	8553	9	8544	99.89
Total	17106	23	17083	99.87
WATER IN SERVICE RESERVOIRS				
Total coliform	18305	59	18246	99.68
Faecal coliform	18305	35	18270	99.81
Total	36610	94	36516	99.74
WATER AT CUSTOMER'S TAPS				
Total coliform	4656	26	4630	99.44
Faecal coliform	4656	10	4646	99.79
Microbiological Total	9312	36	9276	99.61
Chemical Analysis	35894	539	35355	98.50
Total	45206	575	44631	98.73
OVERALL WATER QUALITY TOTAL	98922	692	98230	99.30

Physical and Chemical Water Quality % of tests meeting Regulatory Standard



Water at Customers' Taps

- 4,656 samples were taken from customers' taps and examined for coliforms. Of these, total coliforms were absent from 99.44% of samples and faecal coliforms from 99.79% of samples.

Physical and Chemical Quality

Physical and chemical quality standards apply to water supplied at customers' taps. The Regulations lay down the required sampling frequency for each parameter or group of parameters dependent on the resident population of the water supply zones. 35,894 tests were carried out on the physical and chemical parameters listed in Appendix 1 in 2003, and of these 35,355 complied with the regulatory standards, giving a compliance of 98.50%.

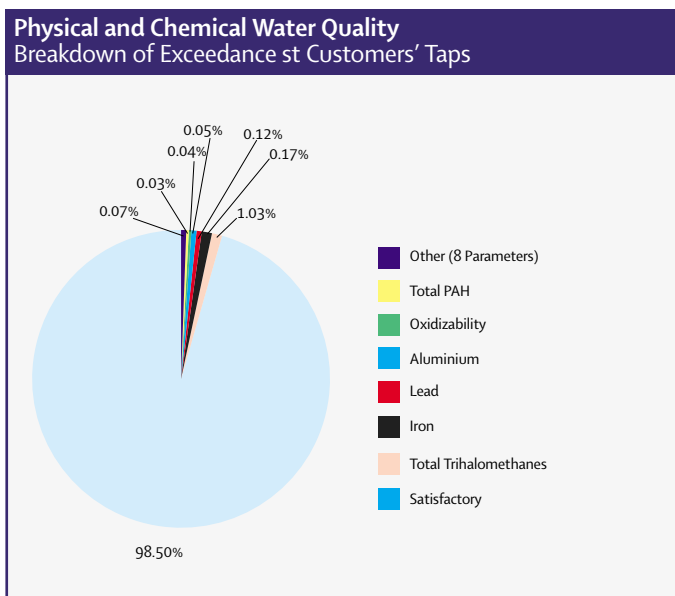
A summary of the physical and chemical quality of water supplied is given in the charts below and more detailed information is contained in Appendix 4.

Trihalomethanes continue to be the parameter which is subject to most exceedences, and this is dealt with in more detail in the next section.

Appendices 3 and 4 show the extent of Water Service's compliance with the regulatory standards. For most parameters, compliance is judged on the basis of the results of individual samples. If a single sample exceeds the PCV, that supply is deemed not to comply with the regulatory standards, even if the cause is outside our control, e.g. defective plumbing within premises. Improved compliance will be achieved through the water treatment works investment programme and thereafter through improvements to the distribution system.

In 2003, a total of 35,355 physical and chemical parameters analysed for, achieved 100% compliance.

Explanatory notes of exceedences of the physical and chemical quality standards with less than 100% compliance are provided in the following section.



Water Quality Issues

Trihalomethanes (THMs)

THMs are chlorination by-products arising from the reaction of chlorine, used for disinfection, with natural organic material present in water. The maintenance of microbiological quality (and hence the use of chlorine) is Water Service's main priority. Northern Ireland waters are predominantly drawn from surface sources, which can contain these organic materials.

The water treatment works investment programme is designed to reduce organic matter prior to chlorination and thereby reduce Trihalomethane levels. Improved compliance is expected, as improvements to water treatment works and distribution system are completed.

In the interim Water Service is:

- using where practicable monochloramine as an alternative disinfectant and
- continually reviewing its operational procedures with the aim of reducing THM levels in the distribution system, while maintaining microbiological quality.

Iron

The iron standard has been set for aesthetic reasons as levels persistently above the standard can give rise to discoloured water and occurrence of particles. Where the standard for iron has not been met, this may be due to problems of corrosion of cast iron watermains. There is an ongoing programme of scouring and cleaning of the distribution system to minimise the problem. In addition, Water Service have an ongoing Water Mains Rehabilitation Programme in which supply zones which experience water quality and other supply problems are subjected to Detailed Zonal Study. These Detailed Zonal Studies include the analysis of historic water quality data (including iron) and the implementation of targeted water sampling and analysis programmes to determine the nature and extent of the water quality problems. Appropriate solutions to the problems are then developed which include mains cleaning and renovation and replacement of parts of the distribution system. Implementation of the solutions is undertaken either by Water Service or their Contractors.

Polycyclic Aromatic Hydrocarbons (PAHs)

PAHs including Benzo 3,4 Pyrene and Fluoranthene are organic compounds that can occur in drinking water due to the deterioration of coal tar linings, which were used in the past to

protect iron watermains from corrosion. The planned watermains rehabilitation programme will continue to address this.

Oxidizability

Oxidizability is used to assess the general organic content of the water.

Aluminium

Aluminium can be present in water supplies as a natural constituent due to the nature and structure of the ground from which the supplies are taken. Water supply zones served from the Silent Valley source in the Mourne Mountains have naturally occurring aluminium in their water supplies and the new treatment facilities will lower these levels to below the regulatory standard.

Aluminium compounds are used at some water treatment works as coagulants, for the removal of suspended matter and impurities. The coagulant is subsequently removed, along with the impurities, before the water leaves the treatment works.

The standard set for aluminium is based on aesthetic considerations. A number of water supplies may contain concentrations of aluminium which could exceed the standard from time to time because of changes in raw water quality or treatment process fluctuations.

Hydrogen Ion Concentration (pH)

Hydrogen ion concentration (pH) is used as a measure of the acidity or alkalinity of water supplies. In Northern Ireland many upland waters used for water supply, contain organic matter derived from peat which is acidic by nature.

The pH of water supplied is adjusted to control the corrosion of watermains and as a preventative measure to reduce the uptake of metals such as lead, copper and zinc from customers' plumbing.

Where the standard for pH has not been met in treated water, this may be related to a problem at a water treatment works, or occasionally from newly installed cement lined water mains in the distribution systems. As water treatment works are upgraded the number of exceedences arising from this source should decrease.

Lead

Water leaving treatment works and in the distribution systems contains only trace amounts of lead. However, where lead has been used for service pipes between the watermain and the kitchen tap or domestic plumbing, there may be a risk of concentrations at the customer's tap exceeding the lead standard.

Many older properties still have service pipes and internal plumbing wholly or partly comprised of lead. If a sample is found to exceed the limit for lead in drinking water, both the customer and the local Environmental Health Officer are notified. Water Service will replace free of charge, any of its pipes which may be lead in the supply to a property, if it receives a written request from a customer who has replaced the portion of lead service pipe for which the householder is responsible. A leaflet on lead in drinking water 'Have you got lead pipes?' is available, free of charge, from our Customer Service Units.

The majority of supplies in Northern Ireland are to be treated with phosphate to minimise levels of lead in the water supply.

The Water Mains Rehabilitation Programme detailed Zonal studies referred to earlier includes sampling and testing for lead and aims to identify the presence of lead communication pipes in a zone. Also, where water mains are being rehabilitated, Water Service requires any lead communication pipes encountered to be replaced to the edge of the property.

Pesticides

Pesticides include insecticides, herbicides, fungicides and algicides. These can find their way into watercourses from a variety of sources, mainly from use in agriculture or weed control. Water Service has an ongoing pesticide monitoring programme and currently analyses samples for 43 individual pesticides.

The pesticide exceedences were for one of the more commonly used pesticides - MCPA. Water Service is currently engaged on a series of catchment management plans which will look at pesticide usage and control.

Manganese

Manganese occurs naturally in many water sources. Concentrations can vary seasonally or be attributed to the disturbance of accumulated deposits at the bottom of

reservoirs when the water is drawn down or when water circulation occurs. The standard for manganese has been set for aesthetic reasons to prevent unpleasant tastes, staining or discoloured water.

Cryptosporidium

Cryptosporidium is a protozoan parasite found in man, many other mammals and also birds, fish and reptiles. In response to the outbreaks of cryptosporidiosis in Swindon and Oxfordshire in 1988 the Government established an Expert Group to advise on the significance of *Cryptosporidium* in water supplies. The Third Group under the chairmanship of Professor Ian Bouchier reported in 1998 and the report includes the recommendations made by the two previous reports with additional comments where necessary.

Water Service has completed risk assessments for all treatment plants prior to the introduction of new regulations on 25 December 2003.

Ammonium

The exceedence of the ammonium parameter is associated with the chloramination process at the Derg Water Treatment Plant. Its relevance is being discussed with the Drinking Water Inspectorate.

Turbidity

Particulate matter, usually the re-suspension of sediments present in the distribution system, affects the turbidity of drinking water. Systematic flushing of the local pipework usually restores water quality.

Other Parameters

A single exceedence was recorded for Potassium. This was investigated and no repeat exceedences were recorded.

Summary

Exceedences of the regulatory standard are investigated following procedures agreed with the Health Authorities and the Drinking Water Inspectorate. Closure of an event cannot take place without their approval.

Investing for the Future

Water Treatment and the Distribution System

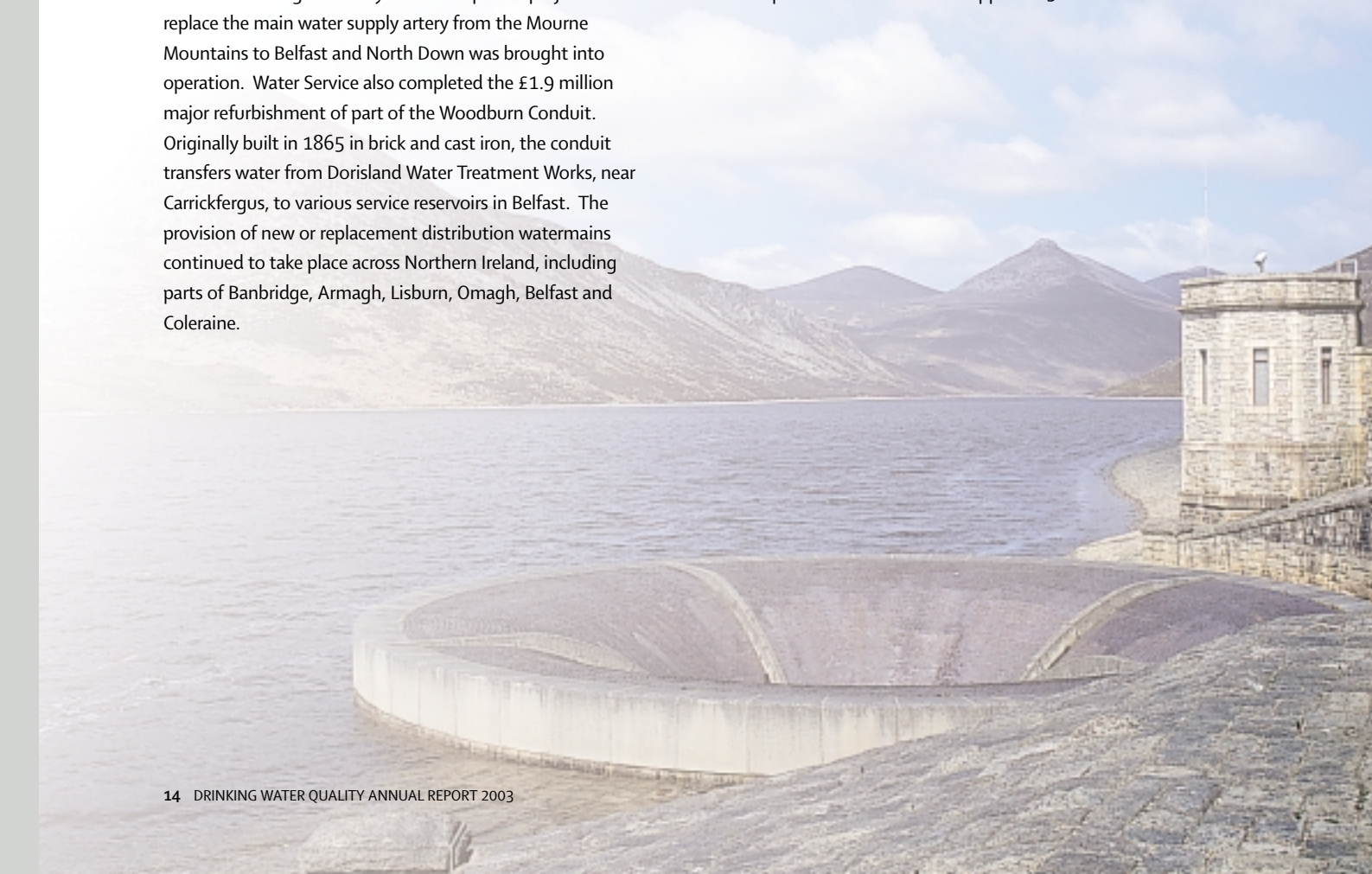
During the period of this report work continued on the on-going programme of improvements to Water Service's water treatment works. Water Service completed major improvements to the Lough Macrory Water Treatment Works, which will improve the water quality in Omagh and the surrounding rural areas. Work was also completed on improvements to the water supply system on Rathlin Island and ongoing improvement work took place at a number of treatment facilities including Dunore Point, Lough Fea, outside Cookstown and Seagahan, south of Armagh. Construction of the new £25 million Mourne Water Treatment Works near the village of Drumaroad in County Down continued throughout the year. When completed this works will have the capacity to treat up to 155 million litres of Mourne water per day. Work commenced on the replacement of the existing Fofannybane Water Treatment Works located in the Mourne Mountains, close to the Fofanny Dam. The £18.5 million contract is programmed for completion during 2006 and will treat up to 48 million litres of water per day.

Expenditure on the trunk and distribution watermain network continued throughout the year. The Aquarius project to replace the main water supply artery from the Mourne Mountains to Belfast and North Down was brought into operation. Water Service also completed the £1.9 million major refurbishment of part of the Woodburn Conduit. Originally built in 1865 in brick and cast iron, the conduit transfers water from Dorisland Water Treatment Works, near Carrickfergus, to various service reservoirs in Belfast. The provision of new or replacement distribution watermains continued to take place across Northern Ireland, including parts of Banbridge, Armagh, Lisburn, Omagh, Belfast and Coleraine.

Water Service also continued with our detailed studies of the watermain network system throughout Northern Ireland. Results from these studies will lead to an extensive watermain rehabilitation programme over the next 10 to 15 years depending on the availability of funding. The first projects resulting from these studies are programmed to commence in 2004.

Work continued throughout the year to develop the recommendations of the Water Resource Strategy. The Strategy will provide Water Service with a robust basis for the development and management of secure and sustainable water resources in Northern Ireland. Water Service also continued with the development of the second Asset Management Programme (NIAMP2). The project, which will take account of Water Service's obligations, policies and objectives, will develop and cost solutions for the enhancement of our assets.

Water Service's programming of improvements is dependent on the level of funding it receives. The current status of Water Service's water treatment investment for water quality improvements is set out in Appendix 5.



Research, Development and Innovation

Water Service undertakes a programme of applied research and technology development to support the development of standards and best practice and promote technical innovation. This programme is driven by the need to improve quality, whilst making efficiency gains, and contains several projects aimed at improving compliance with drinking water quality standards.

Water Service is a member of United Kingdom Water Industry Research Ltd. (UKWIR), an organisation that provides a framework for the procurement of a common research programme for UK water operators on “one-voice” issues. Projects undertaken by UKWIR during 2003 relating to water quality included the following aimed at: -

- reducing the number of discoloured water incidents;
- assessing and minimising microbiological risk;
- identifying the microbial implications of climate change for the water industry
- optimising treatment to reduce plumbosolvency.

Water Service is wholly dependent on the environment for its natural resource - water. UKWIR, with Water Service input, has developed sustainability indicators which track progress in reducing the environmental impact of our activities.

Several projects initiated within Water Service have also been aimed at water quality issues. These have included the:

- serviceability of water distribution mains;
- improved control of water treatment processes;
- assessment of potential problems posed by the colonisation of raw water sources by zebra mussels;

The results of these projects will be implemented as part of ongoing technology development directed at quality improvement.



Public Information

Drinking Water Register

Water Service maintains a Drinking Water Register recording detailed water quality results for each water supply zone.

The Register is available for inspection, free of charge, during normal working office hours at Water Service offices listed opposite. Customers can examine any record on the register and obtain a free copy of the information for the water supply zone they live in. A charge may be made for printed information on other zones.

Customers who wish to receive information about the quality of water in their water supply zone by post, can write to the appropriate nearest address listed, or alternatively contact Water Service's Customer Services on: 08457 440088. There is also a text number for customers who have hearing difficulties - 08457 023206. Calls to these numbers are charged at the local rate.



Water Service Customer Services

Marlborough House
Highfield Road, Central Way
Craigavon BT64 1AD

Water Service Customer Services

Westland House
Old Westland Road
Belfast BT14 6TE

Water Service Customer Services

1a Belt Road
Altnagelvin
Londonderry BT47 2LL

Water Service Customer Services

Academy House
121a Broughshane Street
Ballymena BT43 6BA

Customers may also contact Customer Services by email on waterline@waterni.gov.uk.

Further information for customers may be obtained at the Water Service website:

<http://www.waterni.gov.uk>

Customer Services

Staff in Customer Services record details and the nature of all enquiries, requests for services, emergencies and complaints. All enquiries etc. are logged and routed directly to staff who will investigate the matter and resolve the problem as quickly as possible.

Water Service produces a range of leaflets about its services, including those designed to provide customers with the opportunity to learn more about water quality standards, water efficiency and the need to use water wisely. The leaflets can be obtained from Customer Service Units or may be viewed on the Water Service Website.

Drinking Water Quality Standards

Parameter	Description	Prescribed Concentration or Value (PCV)
1 Temperature	The standards require the water to be supplied below a certain temperature.	25 °C
2 Hydrogen Ion (pH)	This is a measure of acidity or alkalinity of water.	5.5 - 9.5 Units
3 Colour	This is an aesthetic requirement - water should be clear in colour and bright, but may occasionally show a reddish or yellowish tint caused by iron from old iron mains.	20 mg/l Pt/Co Hazen Units scale
4 Turbidity	Fine particles in the water cause haziness.	4 Formazin turbidity units
5 Odour Quantitative	This test is to check if any odour is present. Water may smell of chlorine. A small amount of chlorine is added to water before it leaves the treatment works to ensure that the water remains safe on its journey to customers' taps, but it is not harmful.	Dilution Number 3
6 Taste Quantitative	This test is to check if the water has any unpleasant taste. If water has been standing in pipework for some hours it may have a flat or stale metallic taste. If customers have this problem it may help to flush the tap before taking water for drinking. Quality controlled tests are used to measure the level of odour and taste and are carried out by specialist tasting panels.	Dilution number 3 at 25 °C
7 Conductivity	A measure of the total content of dissolved salts naturally present in the water.	1500 micro siemens per centimetre at 20 °C
8 Total Coliforms 9 Faecal Coliforms	These are bacteria which can sometimes be found in untreated water. Disinfection during treatment removes them. Many instances of coliforms in samples are due to contamination at the tap, particularly the kitchen tap. We recommend customers clean their taps regularly including inside the spout.	Zero per 100ml Zero per 100ml
10 Oxidizability	This test indicates the general organic content of water.	5 mg/l
11 Ammonium	Ammonium occurs naturally in water from some sources. Where it does occur, it can be controlled or removed by treatment.	0.5 mg/l
12 Nitrite 13 Nitrate	Both these substances are found in water running over and through agricultural land.	0.1 mg/l 50 mg/l
14 Chloride	Occurs naturally in most water sources. Standards are set to avoid taste and corrosion problems.	400 mg/l

Drinking Water Quality Standards

Parameter	Description	Prescribed Concentration or Value (PCV)
15 Phosphorous	Phosphorous occurs naturally in water and can also come from agricultural sources	2200 µg/l
16 Fluoride	Fluoride occurs naturally at various levels in the country.	1500 µg/l
17 Sulphate	Sulphate occurs naturally in water and comes from mineral deposits.	250 µg/l
18 Magnesium	Magnesium occurs naturally in water and comes from mineral deposits.	50 µg/l
19 Manganese	Manganese occurs naturally in water and can stain some surfaces e.g. the inside of kettles.	50 µg/l
20 Aluminium	Aluminium occurs naturally in some water supplies, it can also be used to remove impurities from water.	200 µg/l
21 Calcium	Calcium occurs naturally in water and is the principal cause of hardness.	250 µg/l
22 Potassium	Potassium occurs naturally in water.	12 µg/l
23 Sodium	Sodium occurs naturally in water but can occur as a by-product of treatment.	150 µg/l
24 Copper	Traces of zinc and copper are occasionally found in water. They usually come from old and corroding customers' plumbing and can cause a metallic taste.	3000 µg/l
25 Zinc		5000 µg/l
26 Iron	Iron is found naturally in some ground waters. It can also find its way into water from old iron mains or customers' own iron pipes.	200 µg/l
27 Lead	Very little lead is present in the water supply, but may be dissolved into the water through contact with lead piping.	50 µg/l
28 Silver	Silver occurs naturally in water.	10 µg/l
29 Antimony	Very low levels may occur in waters after passing through various mineral deposits and rock strata. Higher amounts could be associated with industrial pollution.	10 µg/l
30 Arsenic		50 µg/l
31 Barium		1000 µg/l
32 Boron		2000 µg/l
33 Cadmium		5 µg/l
34 Chromium		50 µg/l
35 Cyanide		50 µg/l
36 Mercury		1 µg/l
37 Nickel		50 µg/l
38 Selenium		10 µg/l

Drinking Water Quality Standards

Parameter	Description	Prescribed Concentration or Value (PCV)
39 Trihalomethanes (THMs)	THMs are derived from the combination of chlorine with organic matter naturally present in water.	100 µg/l (as a 3 month average)
40 Tetrachloromethane	The presence of these organic compounds is an indication of industrial pollution.	3 µg/l
41 Trichloroethene		30 µg/l
42 Tetrachloroethene		10 µg/l
43 Surfactants	These substances are associated with industrial and domestic detergents.	200 µg/l
44 Benzo 3,4 Pyrene	These substances (including Fluoranthene) can occur in water and are associated with the deterioration of coal tar linings of iron water mains. Coal tar linings are no longer used in new water mains.	10 ng/l
45 Total PAHs		0.2 µg/l
46 Gamma HCH (Lindane)	Parameters 46 to 89 list the various herbicide and pesticide substances which are tested for. They find their way into watercourses from use in agriculture or weed control.	0.1 µg/l
47 Endosulphan A		0.1 µg/l
48 Endosulphan B		0.1 µg/l
49 Aldrin		0.1 µg/l
50 Dieldrin		0.1 µg/l
51 Endrin		0.1 µg/l
52 pp-DDT		0.1 µg/l
53 op-DDT		0.1 µg/l
54 Atrazine		0.1 µg/l
55 Simazine		0.1 µg/l
56 Mecoprop (MCP)		0.1 µg/l
57 Chlortoluron		0.1 µg/l
58 Isoproturon		0.1 µg/l
59 MCPA		0.1 µg/l
60 Dichlorvos		0.1 µg/l
61 Parathion		0.1 µg/l
62 Azinphos-Methyl		0.1 µg/l
63 Chlorfenvinphos		0.1 µg/l
64 Diazinon		0.1 µg/l
65 Fenitrothion		0.1 µg/l
66 Malathion	0.1 µg/l	
67 Hexachlorobenzene	0.1 µg/l	
68 Pentachlorophenol	0.1 µg/l	
69 Propetamphos	0.1 µg/l	
70 Trifluralin	0.1 µg/l	

Drinking Water Quality Standards

Parameter	Description	Prescribed Concentration or Value (PCV)
71 Asulam		0.1 µg/l
72 Dicamba		0.1 µg/l
73 Dichlorbenil		0.1 µg/l
74 Diquat		0.1 µg/l
75 Glyphosate		0.1 µg/l
76 Terbutryne		0.1 µg/l
77 Total Endosulphan		0.1 µg/l
78 Bentazone		0.1 µg/l
79 Chlorpropham		0.1 µg/l
80 Clopyralid	See previous page	0.1 µg/l
81 Dichlorophen		0.1 µg/l
82 Diuron		0.1 µg/l
83 Fenpropimorph		0.1 µg/l
84 Flutriafol		0.1 µg/l
85 Tecnazene		0.1 µg/l
86 1,2 Dichloroethane		0.1 µg/l
87 Endosulphan Total		0.1 µg/l
88 Cypermethrum		0.1 µg/l
89 Flumethrin		0.1 µg/l
90 Total Pesticides	The limit for total pesticides refers to the sum of the concentration of the individually detected substances.	0.5 µg/l

EXPLANATORY NOTES

Measurement Units

mg/l means one part in a million.

µg/l means one part in a thousand million.

ng/l means one part in a million million.

Parameter

A parameter refers to any substance, organism or property listed above.

Water Quality (N.I.) Regulations 1994

Year 2003 Relaxed Standards at Water Treatment Works

	Parameter				
	Colour (mg/l)	Manganese (µg/l)	Odour (Dilution Number)	Taste (Dilution Number)	Aluminium (µg/l)
Altaveedan	40	310			
Altmore	50	200			
Altnahinch	50	500			
Ballinrees	50	500	4	4	
Ballintemple	50	200	4	4	
Ballymaconaghy	50	150	4	4	
Boomers	35	100	4	4	
Carmony		420	4	4	
Castor Bay	30	100	4	4	
Caugh Hill		140			
Church Road	40	300	4	4	
Clay Lake	40	150			
Creightons Green	40	300	4	4	
Derg		380	4	4	
Dorisland	40	200	4	4	
Dungonell	40	500			
Dunore Point	30	100	4	4	
Foffany	50	250	4	4	
Forked Bridge	35	70	4	4	
Glenhordial	30	160			
Gortlenaghan		200			
Killyhevin	40	310			
Killylane	50	500			
Lough Cowey		60			
Lough Fea	50	500			
Lough Island Reavy		150	4	4	
Lough Macrory	30	240			
Lough Money	30		4	4	
Lough Mourne	40	200	4	4	
Lough Ross	40	500	4	4	
Moyola	50	500	4	4	
Oaklands	30	500			
Pomeroy Springs	30	240			
Rathlin	70	70	4	4	
Seagahan	40	300	4	4	
Silent Valley	35	200	4	4	500
Sullatober	40	200	4	4	
Prescribed Standard	20	50	3	3	200

Microbiological Quality for 2003

Water leaving treatment works

Water leaving treatment works			Percentage of Samples Exceeding Prescribed Concentration or Value	
Volume Distributed Works (m3/d)	Number in Group	No of Samples	Total Coliforms	Faecal Coliforms
<3,000	16	837	0.60	0.36
3,000-12,000	20	2327	0.09	0.04
>12,000	18	5389	0.13	0.09
Total	54	8553	0.16	0.11

Water in Service Reservoirs			Percentage of Samples Exceeding Prescribed Concentration or Value	
Volume Distributed Works (m3/d)	Number in Group	No of Samples	Total Coliforms	Faecal Coliforms
<2,000	254	12845	0.33	0.19
2,000-10,000	83	4246	0.35	0.19
>10,000	24	1214	0.25	0.16
Total	361	18305	0.33	0.19

Water at Customers' Taps			Percentage of Samples Exceeding Prescribed Concentration or Value	
Volume Distributed Works (m3/d)	Number in Group	No of Samples	Total Coliforms	Faecal Coliforms
<5,000	20	239	1.26	0.42
5,000-20,000	34	1363	0.51	0.22
>20,000	43	3054	0.52	0.20
Total	97	4656	0.56	0.21

Physical and Chemical Quality for 2003

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Parameter	Zone Population	Number of Zones	Number of Tests	% Exceeding PCV (i)	Number of tests in column 5 which satisfy the relaxed standards	Number of Zones in which PCV or relaxed standards were exceeded (ii)
1.2 Dichloroethane	< 5,000	20	74	0.00	0	0
	5,000 - 20,000	34	136	0.00	0	0
	20,001 - 50,000	43	173	0.00	0	0
	Total	97	383	0.00	0	0
Aldrin	< 5,000	20	74	0.00	0	0
	5,000 - 20,000	34	136	0.00	0	0
	20,001 - 50,000	43	173	0.00	0	0
	Total	97	383	0.00	0	0
Aluminium	< 5,000	20	127	3.15	2	3
	5,000 - 20,000	34	401	16.71	59	11
	20,001 - 50,000	43	797	17.06	126	16
	Total	97	1325	15.62	187	30
Ammonium	< 5,000	20	79	0	0	0
	5,000 - 20,000	34	234	0	0	0
	20,001 - 50,000	43	412	0	0	0
	Total	97	725	0	0	0
Antimony	< 5,000	20	20	0	0	0
	5,000 - 20,000	34	34	0	0	0
	20,001 - 50,000	43	42	0	0	0
	Total	97	96	0	0	0
Arsenic	< 5,000	20	20	0	0	0
	5,000 - 20,000	34	34	0	0	0
	20,001 - 50,000	43	42	0	0	0
	Total	97	96	0	0	0
Asulam	< 5,000	20	74	0	0	0
	5,000 - 20,000	34	136	0	0	0
	20,001 - 50,000	43	173	0	0	0
	Total	97	383	0	0	0
Atrazine	< 5,000	20	74	0	0	0
	5,000 - 20,000	34	136	0	0	0
	20,001 - 50,000	43	173	0	0	0
	Total	97	383	0	0	0
Azinphos-Methyl	< 5,000	20	74	0	0	0
	5,000 - 20,000	34	136	0	0	0
	20,001 - 50,000	43	173	0	0	0
	Total	97	383	0	0	0
Barium	< 5,000	20	20	0	0	0
	5,000 - 20,000	34	34	0	0	0
	20,001 - 50,000	43	42	0	0	0
	Total	97	96	0	0	0

Physical and Chemical Quality for 2003

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Parameter	Zone Population	Number of Zones	Number of Tests	% Exceeding PCV (i)	Number of tests in column 5 which satisfy the relaxed standards	Number of Zones in which PCV or relaxed standards were exceeded (ii)
Bentazone	< 5,000	20	74	0	0	0
	5,000 - 20,000	34	136	0	0	0
	20,001 - 50,000	43	173	0	0	0
	Total	97	383	0	0	0
Benzo 3.4 Pyrene	< 5,000	20	101	0	0	0
	5,000 - 20,000	34	181	0	0	0
	20,001 - 50,000	43	225	1.33	0	2
	Total	97	507	0.59	0	2
Boron	< 5,000	20	19	0	0	0
	5,000 - 20,000	34	34	0	0	0
	20,001 - 50,000	43	42	0	0	0
	Total	97	95	0	0	0
Cadmium	< 5,000	20	19	0	0	0
	5,000 - 20,000	34	34	0	0	0
	20,001 - 50,000	43	42	0	0	0
	Total	97	95	0	0	0
Calcium	< 5,000	20	19	0	0	0
	5,000 - 20,000	34	34	0	0	0
	20,001 - 50,000	43	39	0	0	0
	Total	97	92	0	0	0
Chlorfenvinphos	< 5,000	20	74	0	0	0
	5,000 - 20,000	34	136	0	0	0
	20,001 - 50,000	43	173	0	0	0
	Total	97	383	0	0	0
Chloride	< 5,000	20	19	0	0	0
	5,000 - 20,000	34	33	0	0	0
	20,001 - 50,000	43	39	0	0	0
	Total	97	91	0	0	0
Chlorpropham	< 5,000	20	74	0	0	0
	5,000 - 20,000	34	136	0	0	0
	20,001 - 50,000	43	173	0	0	0
	Total	97	383	0	0	0
Chlortoluron	< 5,000	20	74	0	0	0
	5,000 - 20,000	34	136	0	0	0
	20,001 - 50,000	43	173	0	0	0
	Total	97	383	0	0	0
Chromium	< 5,000	20	20	0	0	0
	5,000 - 20,000	34	34	0	0	0
	20,001 - 50,000	43	42	0	0	0
	Total	97	96	0	0	0

Physical and Chemical Quality for 2003

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Parameter	Zone Population	Number of Zones	Number of Tests	% Exceeding PCV (i)	Number of tests in column 5 which satisfy the relaxed standards	Number of Zones in which PCV or relaxed standards were exceeded (ii)
Clopyralid	< 5,000	20	74	0	0	0
	5,000 - 20,000	34	136	0	0	0
	20,001 - 50,000	43	173	0	0	0
	Total	97	383	0	0	0
Colour	< 5,000	20	95	2.11	2	2
	5,000 - 20,000	34	254	0.79	2	2
	20,001 - 50,000	43	415	0.96	4	3
	Total	97	764	1.05	8	7
Copper	< 5,000	20	76	0	0	0
	5,000 - 20,000	34	136	0	0	0
	20,001 - 50,000	43	158	0	0	0
	Total	97	370	0	0	0
Cyanide	< 5,000	20	20	0	0	0
	5,000 - 20,000	34	34	0	0	0
	20,001 - 50,000	43	42	0	0	0
	Total	97	96	0	0	0
Cypermethrin	< 5,000	20	74	0	0	0
	5 000 - 20,000	34	136	0	0	0
	20,001 - 50,000	43	173	0	0	0
	Total	97	383	0	0	0
Diazinon	< 5,000	20	74	0	0	0
	5,000 - 20,000	34	136	0	0	0
	20,001 - 50,000	43	173	0	0	0
	Total	97	383	0	0	0
Dicamba	< 5,000	20	74	0	0	0
	5,000 - 20,000	34	136	0	0	0
	20,001 - 50,000	43	173	0	0	0
	Total	97	383	0	0	0
Dichlorbenil	< 5,000	20	74	0	0	0
	5,000 - 20,000	34	136	0	0	0
	20,001 - 50,000	43	173	0	0	0
	Total	97	383	0	0	0
Dichlorophen	< 5,000	20	74	0	0	0
	5,000 - 20,000	34	136	0	0	0
	20,001 - 50,000	43	173	0	0	0
	Total	97	383	0	0	0
Dichlorvos	< 5,000	20	74	0	0	0
	5,000 - 20,000	34	136	0	0	0
	20,001 - 50,000	43	173	0	0	0
	Total	97	383	0	0	0

Physical and Chemical Quality for 2003

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Parameter	Zone Population	Number of Zones	Number of Tests	% Exceeding PCV (i)	Number of tests in column 5 which satisfy the relaxed standards	Number of Zones in which PCV or relaxed standards were exceeded (ii)
Dieldrin	< 5,000	20	74	0	0	0
	5,000 - 20,000	34	136	0	0	0
	20,001 - 50,000	43	173	0	0	0
	Total	97	383	0	0	0
Diquat	< 5,000	20	74	0	0	0
	5,000 - 20,000	34	136	0	0	0
	20,001 - 50,000	43	173	0	0	0
	Total	97	383	0	0	0
Diuron	< 5,000	20	74	0	0	0
	5,000 - 20,000	34	136	0	0	0
	20,001 - 50,000	43	173	0	0	0
	Total	97	383	0	0	0
Endosulphan A	< 5,000	20	74	0	0	0
	5,000 - 20,000	34	136	0	0	0
	20,001 - 50,000	43	173	0	0	0
	Total	97	383	0	0	0
Endosulphan B	< 5,000	20	74	0	0	0
	5,000 - 20,000	34	136	0	0	0
	20,001 - 50,000	43	173	0	0	0
	Total	97	383	0	0	0
Endosulphan Total	< 5,000	20	74	0	0	0
	5,000 - 20,000	34	136	0	0	0
	20,001 - 50,000	43	173	0	0	0
	Total	97	383	0	0	0
Endrin	< 5,000	20	74	0	0	0
	5,000 - 20,000	34	136	0	0	0
	20,001 - 50,000	43	173	0	0	0
	Total	97	383	0	0	0
Fenitrothion	< 5,000	20	74	0	0	0
	5,000 - 20,000	34	136	0	0	0
	20,001 - 50,000	43	173	0	0	0
	Total	97	383	0	0	0
Fenpropimorph	< 5,000	20	74	0	0	0
	5,000 - 20,000	34	136	0	0	0
	20,001 - 50,000	43	173	0	0	0
	Total	97	383	0	0	0
Flumethrin	< 5,000	20	74	0	0	0
	5,000 - 20,000	34	136	0	0	0
	20,001 - 50,000	43	173	0	0	0
	Total	97	383	0	0	0

Physical and Chemical Quality for 2003

(1) Parameter	(2) Zone Population	(3) Number of Zones	(4) Number of Tests	(5) % Exceeding PCV (i)	(6) Number of tests in column 5 which satisfy the relaxed standards	(7) Number of Zones in which PCV or relaxed standards were exceeded (ii)
Fluoride	< 5,000	20	19	0	0	0
	5,000 - 20,000	34	32	0	0	0
	20,001 - 50,000	43	39	0	0	0
	Total	97	90	0	0	0
Flutriafol	< 5,000	20	74	0	0	0
	5,000 - 20,000	34	136	0	0	0
	20,001 - 50,000	43	173	0	0	0
	Total	97	383	0	0	0
Gamma HCH (Lindane)	< 5 000	20	74	0	0	0
	5 000 - 20 000	34	136	0	0	0
	20,001 - 50,000	43	173	0	0	0
	Total	97	383	0	0	0
Glyphosate	< 5,000	20	74	0	0	0
	5,000 - 20,000	34	136	0	0	0
	20,001 - 50,000	43	181	0	0	0
	Total	97	391	0	0	0
Hexachlorobenzene	< 5,000	20	74	0	0	0
	5,000 - 20,000	34	136	0	0	0
	20,001 - 50,000	43	173	0	0	0
	Total	97	383	0	0	0
Hydrogen Ion	< 5,000	20	137	0.73	0	1
	5,000 - 20,000	34	689	0.29	0	2
	20,001 - 50,000	43	1775	0.34	0	5
	Total	97	2601	0.35	0	8
Iron	< 5,000	20	158	1.27	0	2
	5,000 - 20,000	34	576	2.78	0	13
	20,001 - 50,000	43	1113	3.50	0	17
	Total	97	1847	3.09	0	32
Isoproturon	< 5,000	20	74	0	0	0
	5,000 - 20,000	34	136	0	0	0
	20,001 - 50,000	43	173	0	0	0
	Total	97	383	0	0	0
Lead	< 5,000	20	114	3.51	0	3
	5,000 - 20,000	34	196	4.08	0	6
	20,001 - 50,000	43	343	9.04	0	11
	Total	97	653	6.58	0	20
MCPA	< 5,000	20	97	3.09	0	2
	5,000 - 20,000	34	139	0	0	0
	20,001 - 50,000	43	182	2.20	0	4
	Total	97	418	1.67	0	6

Physical and Chemical Quality for 2003

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Parameter	Zone Population	Number of Zones	Number of Tests	% Exceeding PCV (i)	Number of tests in column 5 which satisfy the relaxed standards	Number of Zones in which PCV or relaxed standards were exceeded (ii)
Magnesium	< 5,000	20	19	0	0	0
	5,000 - 20,000	34	34	0	0	0
	20,001 - 50,000	43	39	0	0	0
	Total	97	92	0	0	0
Malathion	< 5,000	20	74	0	0	0
	5,000 - 20,000	34	136	0	0	0
	20,001 - 50,000	43	173	0	0	0
	Total	97	383	0	0	0
Manganese	< 5,000	20	102	2.94	3	2
	5,000 - 20,000	34	217	1.84	1	4
	20,001 - 50,000	43	492	1.42	5	6
	Total	97	811	1.73	9	12
Mecoprop (MCP)	< 5,000	20	77	0	0	0
	5,000 - 20,000	34	136	0	0	0
	20,001 - 50,000	43	179	0	0	0
	Total	97	392	0	0	0
Mercury	< 5,000	20	20	0	0	0
	5,000 - 20,000	34	34	0	0	0
	20,001 - 50,000	43	42	0	0	0
	Total	97	96	0	0	0
Nickel	< 5,000	20	20	0	0	0
	5,000 - 20,000	34	34	0	0	0
	20,001 - 50,000	43	42	0	0	0
	Total	97	96	0	0	0
Nitrate	< 5,000	20	79	0	0	0
	5,000 - 20,000	34	197	0	0	0
	20,001 - 50,000	43	386	0	0	0
	Total	97	662	0	0	0
Nitrite	< 5,000	20	79	0	0	0
	5,000 - 20,000	34	198	0	0	0
	20,001 - 50,000	43	386	0	0	0
	Total	97	663	0	0	0
Odour	< 5,000	20	78	0	0	0
	5,000 - 20,000	34	176	0	0	0
	20,001 - 50,000	43	388	0	0	0
	Total	97	642	0	0	0
op DDT	< 5,000	20	74	0	0	0
	5,000 - 20,000	34	136	0	0	0
	20,001 - 50,000	43	173	0	0	0
	Total	97	383	0	0	0

Physical and Chemical Quality for 2003

(1) Parameter	(2) Zone Population	(3) Number of Zones	(4) Number of Tests	(5) % Exceeding PCV (i)	(6) Number of tests in column 5 which satisfy the relaxed standards	(7) Number of Zones in which PCV or relaxed standards were exceeded (ii)
Oxidizability	< 5,000	20	52	5.77	0	2
	5,000 - 20,000	34	76	14.47	0	3
	20,001 - 50,000	43	94	2.13	0	2
	Total	97	222	7.21	0	7
Parathion	< 5,000	20	74	0	0	0
	5,000 - 20,000	34	136	0	0	0
	20,001 - 50,000	43	173	0	0	0
	Total	97	383	0	0	0
Pentachlorophenol	< 5,000	20	81	0	0	0
	5,000 - 20,000	34	136	0	0	0
	20,001 - 50,000	43	173	0	0	0
	Total	97	390	0	0	0
Phosphorous	< 5,000	20	18	0	0	0
	5,000 - 20,000	34	25	0	0	0
	20,001 - 50,000	43	34	0	0	0
	Total	97	77	0	0	0
Potassium	< 5,000	20	19	0	0	0
	5,000 - 20,000	34	34	2.94	0	1
	20,001 - 50,000	43	39	0	0	0
	Total	97	92	1.09	0	1
pp DDT	< 5,000	20	74	0	0	0
	5,000 - 20,000	34	136	0	0	0
	20,001 - 50,000	43	173	0	0	0
	Total	97	383	0	0	0
Propetamphos	< 5,000	20	74	0	0	0
	5,000 - 20,000	34	136	0	0	0
	20,001 - 50,000	43	173	0	0	0
	Total	97	383	0	0	0
Selenium	< 5,000	20	20	0	0	0
	5,000 - 20,000	34	34	0	0	0
	20,001 - 50,000	43	42	0	0	0
	Total	97	96	0	0	0
Silver	< 5,000	20	20	0	0	0
	5,000 - 20,000	34	34	0	0	0
	20,001 - 50,000	43	42	0	0	0
	Total	97	96	0	0	0
Simazine	< 5,000	20	74	0	0	0
	5,000 - 20,000	34	143	0	0	0
	20,001 - 50,000	43	173	0	0	0
	Total	97	390	0	0	0

Physical and Chemical Quality for 2003

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Parameter	Zone Population	Number of Zones	Number of Tests	% Exceeding PCV (i)	Number of tests in column 5 which satisfy the relaxed standards	Number of Zones in which PCV or relaxed standards were exceeded (ii)
Sodium	< 5,000	20	19	0	0	0
	5,000 - 20,000	34	35	0	0	0
	20,001 - 50,000	43	39	0	0	0
	Total	97	93	0	0	0
Sulphate	< 5,000	20	16	0	0	0
	5,000 - 20,000	34	23	0	0	0
	20,001 - 50,000	43	32	0	0	0
	Total	97	71	0	0	0
Surfactants	< 5,000	20	20	0	0	0
	5,000 - 20,000	34	34	0	0	0
	20,001 - 50,000	43	42	0	0	0
	Total	97	96	0	0	0
Taste	< 5,000	20	78	0	0	0
	5,000 - 20,000	34	177	0	0	0
	20,001 - 50,000	43	388	0	0	0
	Total	97	643	0	0	0
Tecnazene	< 5,000	20	74	0	0	0
	5,000 - 20,000	34	136	0	0	0
	20,001 - 50,000	43	173	0	0	0
	Total	97	383	0	0	0
Temperature	< 5,000	20	79	0	0	0
	5,000 - 20,000	34	181	0	0	0
	20,001 - 50,000	43	389	0	0	0
	Total	97	649	0	0	0
Terbutryne	< 5,000	20	74	0	0	0
	5,000 - 20,000	34	136	0	0	0
	20,001 - 50,000	43	173	0	0	0
	Total	97	383	0	0	0
Tetrachloroethene	< 5,000	20	74	0	0	0
	5,000 - 20,000	34	136	0	0	0
	20,001 - 50,000	43	173	0	0	0
	Total	97	383	0	0	0
Tetrachloromethane	< 5,000	20	74	0	0	0
	5,000 - 20,000	34	136	0	0	0
	20,001 - 50,000	43	173	0	0	0
	Total	97	383	0	0	0
Total PAH	< 5,000	20	105	5.71	0	3
	5,000 - 20,000	34	181	1.10	0	2
	20,001 - 50,000	43	228	0.88	0	2
	Total	97	514	1.95	0	7

Physical and Chemical Quality for 2003

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Parameter	Zone Population	Number of Zones	Number of Tests	% Exceeding PCV (i)	Number of tests in column 5 which satisfy the relaxed standards	Number of Zones in which PCV or relaxed standards were exceeded (ii)
Total Pesticides	< 5,000	20	74	2.70	0	2
	5,000 - 20,000	34	136	0	0	0
	20,001 - 50,000	43	173	0	0	0
	Total	97	383	0.52	0	2
Total Trihalomethanes (iii)	< 5,000	20	196	*****	*****	11
	5,000 - 20,000	34	355	*****	*****	17
	20,001 - 50,000	43	487	*****	*****	23
	Total	97	1038	*****	*****	51
Trichloroethene	< 5,000	20	74	0	0	0
	5,000 - 20,000	34	136	0	0	0
	20,001 - 50,000	43	173	0	0	0
	Total	97	383	0	0	0
Trifluralin	< 5,000	20	74	0	0	0
	5,000 - 20,000	34	136	0	0	0
	20,001 - 50,000	43	173	0	0	0
	Total	97383	383	0	0	0
Turbidity	< 5,000	20	95	0	0	0
	5,000 - 20,000	34	307	0	0	0
	20,001 - 50,000	43	571	0.35	0	2
	Total	97	973	0.21	0	2
Zinc	< 5,000	20	76	0	0	0
	5,000 - 20,000	34	136	0	0	0
	20,001 - 50,000	43	158	0	0	0
	Total	97	370	0	0	0
Total (ii) (iii)	< 5,000	20	5803	*****	*****	14
	5,000 - 20,000	34	11928	*****	*****	25
	20,001 - 50,000	43	18163	*****	*****	35
	Total	97	35894	*****	*****	74

(i) PCV = Prescribed Concentration or Value

(ii) A Zone that has contravened the regulatory standard in more than one parameter is recorded only once in column (7)

(iii) Total Trihalomethanes compliance is calculated as a rolling three month average, and not against single tests

Investment Programme

Over the last eight years improvement work has been completed, is substantially complete, or is ongoing at the following water treatment works:

Altnahinch WTW
Ballinrees WTW
Ballysallagh WTW
Carmoncy WTW
Castor Bay WTW
Caugh Hill WTW
Derg WTW
Dungonell WTW
Dunore Point WTW
Fofanny WTW
Glenhordial WTW
Killea WTW
Killyhevlin WTW
Killylane WTW
Lough Bradan WTW
Lough Fea WTW
Lough Macrory WTW
Mourne WTW
Rathlin Island WTW
Woodburn WTW

Looking towards the future, as well as any necessary enhancement to the above water treatment works, improvement work is scheduled for the following:

Clay Lake WTW
Moyola WTW
Carran Hill WTW
Forked Bridge WTW

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