



INVESTOR IN PEOPLE



Water
Service

DRINKING WATER QUALITY REPORT 2002



An Agency within the Department for
Regional Development



FOREWORD

This is Water Service's Annual Drinking Water Quality report covering the calendar year 2002.

Overall, the results show that drinking water quality remains good, with 98.55% of samples taken at customers' taps, complying with the Water Quality Regulations (Northern Ireland) 1994.

Water Service continues to plan for the future and to upgrade both the water treatment and the water distribution systems, with over £60 million being invested in 2002 on improving the water infrastructure. This programme of work included: -

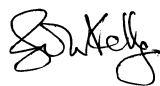
- Commencement of the new £23 million Mourne Water Treatment Works to treat up to 155 million litres per day of water from the Silent Valley.
- Stage 2 of the Aquarius project to replace the Mourne conduit which carries water from the Silent valley to Belfast and large parts of Co Down, together with an ongoing extensive watermains replacement and rehabilitation programme.
- Completion of the studies and input stage of our second Asset Management Plan, to identify and quantify future capital investment needs over the next 30 years.

- Completion of a public consultation exercise on the draft Water Resource Strategy, which is designed to meet projected water demand up to 2030 in a sustainable and cost-effective manner.

The protection of public health remains our highest priority, and we have an ongoing programme of both operational and capital improvements to achieve our strategic aim of regulatory compliance.

The new Water Supply (Water Quality) Regulations (NI) 2002, which implement the new EC Drinking Water Directive, take effect on 25 December 2003. Achieving the new standards, which are aimed at protecting public health, will place further demands on Water Service and require further capital investment in the water infrastructure.

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 all its customers throughout Northern Ireland.

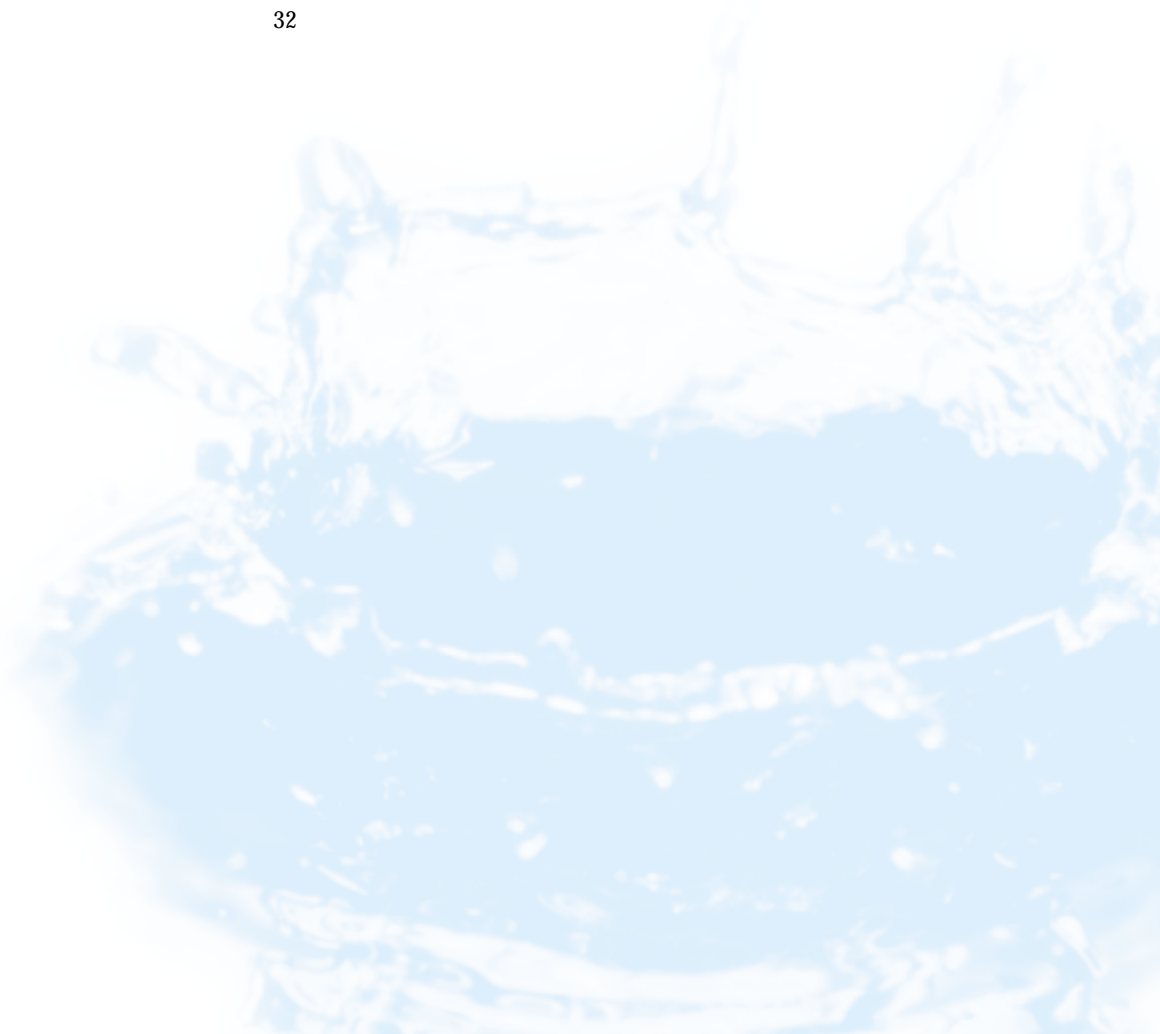


John Kelly
Acting Chief Executive



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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 2002 to 31 December 2002. During this reporting period, 98.55% 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 wellbeing 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 9.1 metres in Scotland.

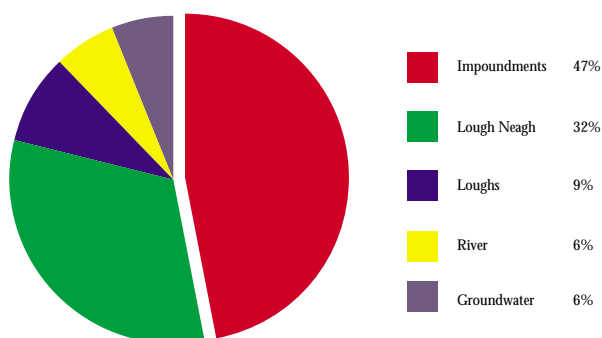
Sufficiency of Supply

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: -

Water Supplies



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 will come into effect on 1st January 2004 and are included in The Water Supply (Water Quality) Regulations (Northern Ireland) 2002.

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 customers' taps;
- a compliance assessment of this information against the regulatory standards;

- carrying out an inspection programme, which examines the sampling, analytical, reporting, water treatment, distribution policies and relevant procedures.

In 2002, the technical audit inspection programme included:

- evaluation of strategies to meet new regulatory requirements;
- a *Cryptosporidium* risk assessment and monitoring review;

- 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 Calvert House, 23 Castle Place, Belfast BT1 1FY.

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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 2002, there were 5 notifiable incidents and 2 events.

Water Quality Incidents/Events

Date	Location	Nature of Incident / Event	Classification
February 2002	Gortahurk Road, Desertmartin	Burst water main - 'Boil Notice' issued.	Incident
April 2002	Artigarvan	Broken sewage pipe - precautionary 'Boil Notice' issued.	Event
July 2002	Premier Drive, Belfast	Bacteriological exceedence - 'Boil Notice' issued.	Incident
August 2002	Ballymartin Village	Bacteriological exceedence - 'Boil Notice' issued.	Incident
October 2002	Carrick / Newtownabbey Area	Taste and odour problems following changeover in water supply.	Event
October 2002	Dungiven	Bacteriological exceedence - 'Boil Notice' issued.	Incident
October 2002	Derrylin	Bacteriological exceedence - '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 101 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

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 now 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.

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

WATER QUALITY SUMMARY

Overall Water Quality

104,645 microbiological, physical and chemical tests were carried out on water samples taken from water treatment works, service reservoirs and customers' taps in the year 2002. 103,722 of these tests complied with the regulatory standards giving an overall compliance of 99.12%.

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 2002 is given below and more detailed information is contained in Appendix 3.

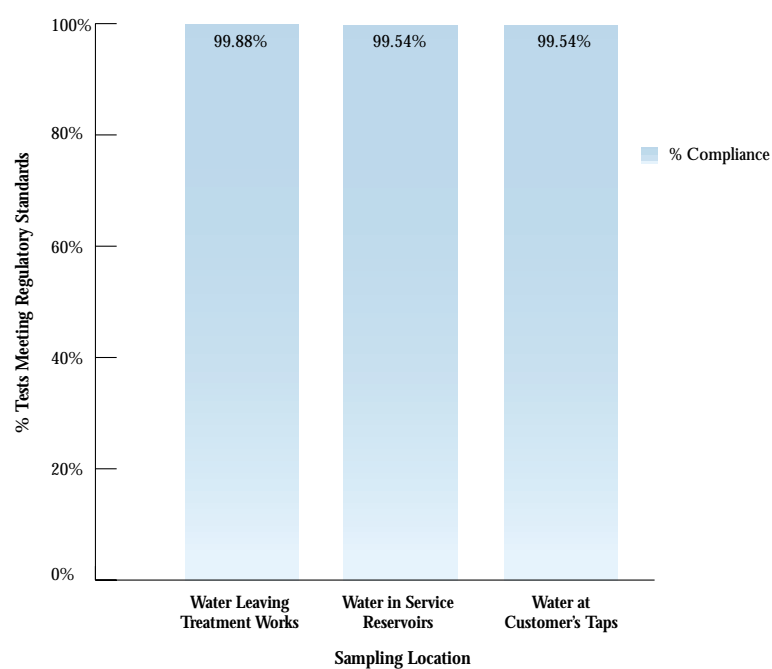
Water Leaving Treatment Works

- 8,649 samples were taken and examined for coliforms. Of these, total coliforms were absent from 99.83% of samples and faecal coliforms from 99.93%.

Water in Service Reservoirs

- 18,329 samples were taken and examined for coliforms. Of these, total coliforms were absent from 99.24% of samples and faecal coliforms from 99.84%.

Microbiological Water Quality % Tests Meeting Regulatory Standards

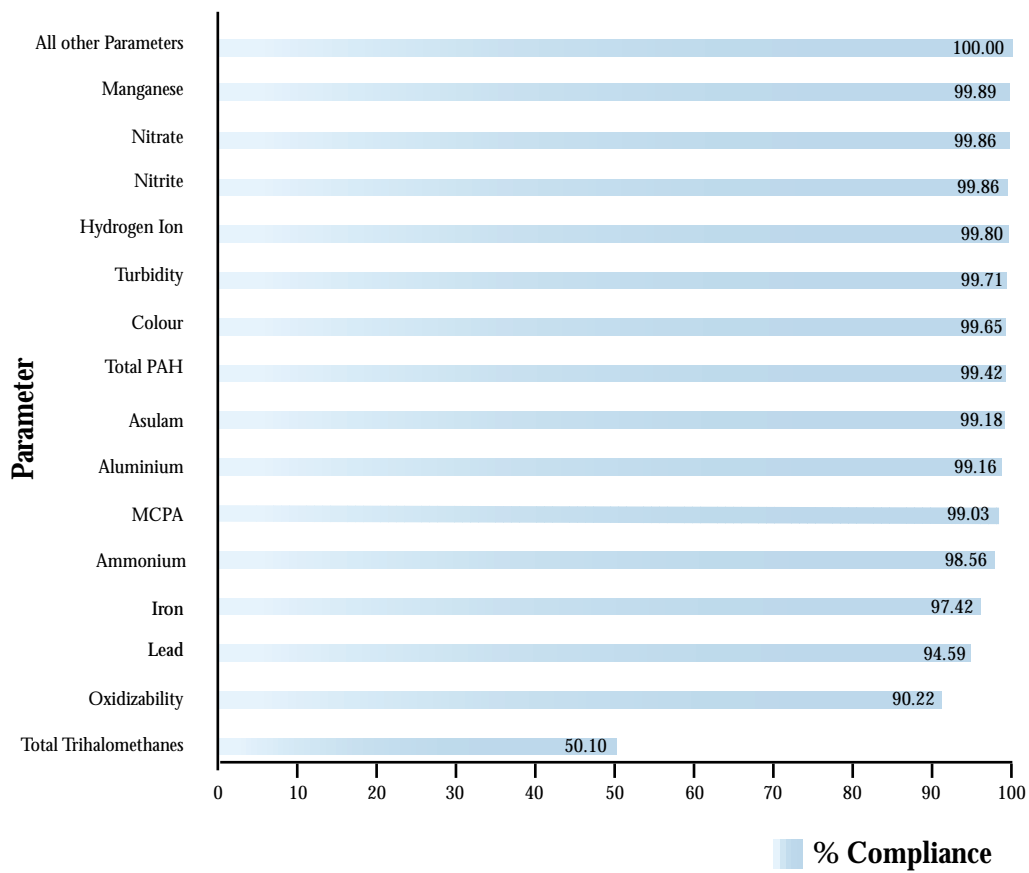


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Overall Water Quality

	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	8649	15	8634	99.83
Faecal coliform	8649	6	8643	99.93
Total	17298	21	17277	99.88
WATER IN SERVICE RESERVOIRS				
Total coliform	18329	139	18190	99.24
Faecal coliform	18329	30	18299	99.84
Total	36658	169	36489	99.54
WATER AT CUSTOMER'S TAPS				
Total coliform	5089	39	5050	99.23
Faecal coliform	5089	8	5081	99.84
Microbiological Total	10178	47	10131	99.54
Chemical Analysis	40511	686	39825	98.31
Total	50689	733	49956	98.55
OVERALL WATER QUALITY TOTAL	104645	923	103722	99.12

Physical and Chemical Water Quality % of tests meeting Regulatory Standard



Water at Customers' Taps

- 5,089 samples were taken from customers' taps and examined for coliforms. Of these, total coliforms were absent from 99.23% of samples and faecal coliforms from 99.84% 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. 40,511 tests were carried out on the physical and chemical parameters listed in Appendix 1 in 2002, and of these 39,825 complied with the regulatory standards, giving a compliance of 98.31%.

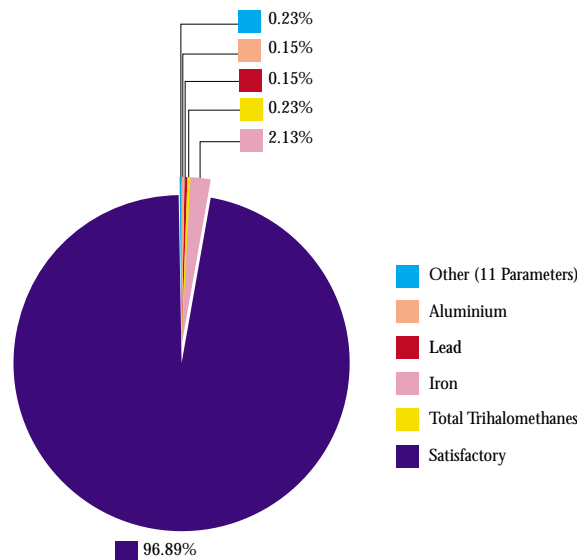
A summary of the physical and chemical quality of water supplied is given in the charts below and more detailed information is contained in Appendix 4.

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 2002, a total of 39,825 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.

Physical and Chemical Water Quality
Breakdown of Exceedence at Customers' Taps



WATER QUALITY ISSUES

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 has 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.

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 boundary 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 two of the more commonly used pesticides - Asulam and 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.

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.

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

Exceedences of the ammonium parameter are associated with the chloramination process at the Derg Water Treatment Plant. Their relevance is being discussed with the Drinking Water Inspectorate.

Other Parameters

Single exceedences were recorded for Nitrate and Nitrite. These were investigated and no repeat exceedences were recorded. Three colour exceedences were recorded for surface sources where improvements are planned.

Summary

In all cases of exceedences remedial action was immediately initiated to ensure the safeguarding of public health. Consultation with the appropriate health authorities was also undertaken in accordance with Water Service's emergency planning procedures.

All the exceedences were investigated by Water Service and dealt with to the satisfaction of the Health Authorities.

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 treatment works. Completion of major improvements to the water treatment works at Derg (near Castlederg) and Ballysallagh (in the Bangor area) took place. Construction work continued on the new Lough Macrory Water Treatment Works. This £13 million project will improve water quality in Omagh and surrounding rural areas. As part of Water Service's on-going programme of work it commenced the construction of the new £23 million Mourne Water Treatment Works near the village of Drumaroad in County Down. This new works will have the capacity to treat up to 155 million litres of Mourne water per day. Water Service also commenced work on improvements to the water supply system on Rathlin Island.

Expenditure on the trunk and distribution watermain network continued throughout the year. Water Service substantially completed that part of the Aquarius project to replace the main water supply artery from the Mourne Mountains to Belfast and North Down. Work also continued to reinforce the distribution network in support of this project. In addition to this, the provision of new or

replacement watermains continued to take place across Northern Ireland. Preliminary work was also initiated on a project to carry out 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. Phase 1 of the contract is expected to cost £1.6 million.

Water Service also continued with its detailed study of the watermain network system which will lead to an extensive 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 2003.

The Water Resource Strategy was completed following the outcome of the public consultation exercise. The Strategy will provide Water Service with a robust basis for the development and management of secure and sustainable water resources in Northern Ireland.

The studies and input stage of Water Service's second Asset Management Programme (NIAMP2) was completed during the year. The project, which will take account of Water Service's obligations, policies and objectives will develop and cost solutions for the

enhancement of the assets to facilitate delivery of secure and sustainable water resources in Northern Ireland over the next 30 years.

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. Within the programme several projects are aimed at the improvement of compliance with water quality standards.

Water Service is a member of United Kingdom Water Industry Research Ltd., an organisation which undertakes collaborative research on fundamental “one-voice” issues on behalf of the water industry. Several projects undertaken within the UKWIR framework in 2002 related to water quality issues. These included:

- work aimed at minimising the impact of discoloured water incidents;
- the management of microbial risks from the water supply source to the tap;
- further work to help minimise the risk of cryptosporidium;
- the development of standards and specifications for pipe materials.

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



- optimisation of water disinfection equipment;
- feasibility of using straw to control the growth of algae in impounding reservoirs;
- optimisation of water alkalinity to minimise corrosion of water pipes and fittings.

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

Water Service Customer Services
SOUTHERN DIVISIONAL OFFICE
Marlborough House
Highfield Road, Central Way
Craigavon BT64 1AD

Water Service Customer Services
WESTERN DIVISIONAL OFFICE
1a Belt Road
Altnagelvin
Londonderry BT47 2LL

Water Service Customer Services
EASTERN DIVISIONAL OFFICE
Westland House
Old Westland Road
Belfast BT14 6TE

Water Service Customer Services
NORTHERN DIVISIONAL OFFICE
Academy House
121a Broughshane Street
Ballymena BT43 6BA

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

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

Customer Services

Staff in Customer Services, in each of the four operational divisions, 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.

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	These are bacteria which can sometimes be found in untreated water.	Zero per 100ml
9 Faecal Coliforms	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
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	Both these substances are found in water running over and through agricultural land.	0.1 mg/l
13 Nitrate		50 mg/l

Parameter	Description	Prescribed Concentration or Value (PCV)
14 Chloride	Occurs naturally in most water sources. Standards are set to avoid taste and corrosion problems.	400 mg/l
16 Phosphorous	Phosphorous occurs naturally in water and can also come from agricultural sources	2200 µg/l
15 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

Parameter	Description	Prescribed Concentration or Value (PCV)
29 Antimony		10 µg/l
30 Arsenic		50 µg/l
31 Barium	Very low levels may occur in waters after passing through various mineral deposits and rock strata. Higher amounts could be associated with industrial pollution.	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
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
45 Gamma HCH(Lindane)		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 (MCPP)	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
57 Chlortoluron		0.1 µg/l
58 Isoproturon		0.1 µg/l
59 MCPA		
60 Dichlorvos		0.1 µg/l
61 Parathion		0.1 µg/l

Parameter	Description	Prescribed Concentration or Value (PCV)
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
71	Asulam	0.1 µg/l
72	Dicamba	See previous page
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	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
89	Total Pesticides	The limit for total pesticides refers to the sum of the concentration of the individually detected substances.

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 2002 RELAXED STANDARDS AT WATER TREATMENT WORKS

Parameter	Description	Prescribed Concentration or Value (PCV)			
	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	
Carmoney		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 2002

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	28	1408	0.43	0.21
3,000-12,000	17	2552	0.12	0.04
>12,000	13	4689	0.13	0.04
Total	58	8649	0.17	0.07

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	259	12908	0.97	0.20
2,000-10,000	82	4233	0.54	0.19
>10,000	19	1188	0.00	0.00
Total	360	18329	0.80	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	23	302	0.33	0.00
5,000-20,000	36	1591	1.19	0.13
>20,000	42	3196	0.69	0.28
Total	101	5089	0.83	0.22

PHYSICAL AND CHEMICAL QUALITY FOR 2002

(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	23	79	0.00	0	0
	5,000-20,000	35	125	0.00	0	0
	> 20,000	43	161	0.00	0	0
	Total	101	365	0.00	0	0
Aldrin	< 5,000	23	79	0.00	0	0
	5,000-20,000	35	125	0.00	0	0
	> 20,000	43	162	0.00	0	0
	Total	101	366	0.00	0	0
Aluminium	< 5,000	23	136	8.82	7	5
	5,000-20,000	35	443	20.32	73	17
	> 20,000	43	893	14.89	121	12
	Total	101	1472	15.96	201	34
Ammonium	< 5,000	23	69	0.00	0	0
	5,000-20,000	35	248	1.61	0	4
	> 20,000	43	447	1.57	0	2
	Total	101	764	1.44	0	6
Antimony	< 5,000	23	19	0.00	0	0
	5,000-20,000	35	32	0.00	0	0
	> 20,000	43	42	0.00	0	0
	Total	101	93	0.00	0	0
Arsenic	< 5,000	23	19	0.00	0	0
	5,000-20,000	35	32	0.00	0	0
	> 20,000	43	42	0.00	0	0
	Total	101	93	0.00	0	0
Asulam	< 5,000	23	79	0.00	0	0
	5,000-20,000	35	125	0.00	0	0
	> 20,000	43	162	1.85	0	3
	Total	101	366	0.82	0	3
Atrazine	< 5,000	23	79	0.00	0	0
	5,000-20,000	35	125	0.00	0	0
	> 20,000	43	162	0.00	0	0
	Total	101	366	0.00	0	0
Azinphos - Methyl	< 5,000	23	79	0.00	0	0
	5,000-20,000	35	125	0.00	0	0
	> 20,000	43	162	0.00	0	0
	Total	101	366	0.00	0	0
Barium	< 5,000	23	19	0.00	0	0
	5,000-20,000	35	32	0.00	0	0
	> 20,000	43	42	0.00	0	0
	Total	101	93	0.00	0	0

(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	23	79	0.00	0	0
	5,000-20,000	35	125	0.00	0	0
	> 20,000	43	162	0.00	0	0
	Total	101	366	0.00	0	0
Benzo 3,4 Pyrene	< 5,000	23	106	0.00	0	0
	5,000-20,000	35	179	0.00	0	0
	> 20,000	43	214	0.00	0	0
	Total	101	499	0.00	0	0
Boron	< 5,000	23	19	0.00	0	0
	5,000-20,000	35	32	0.00	0	0
	> 20,000	43	42	0.00	0	0
	Total	101	93	0.00	0	0
Cadmium	< 5,000	23	19	0.00	0	0
	5,000-20,000	35	32	0.00	0	0
	> 20,000	43	42	0.00	0	0
	Total	101	93	0.00	0	0
Calcium	< 5,000	23	17	0.00	0	0
	5,000-20,000	35	30	0.00	0	0
	> 20,000	43	34	0.00	0	0
	Total	101	81	0.00	0	0
Chlorfenvinphos	< 5,000	23	79	0.00	0	0
	5,000-20,000	35	125	0.00	0	0
	> 20,000	43	162	0.00	0	0
	Total	101	366	0.00	0	0
Chloride	< 5,000	23	16	0.00	0	0
	5,000-20,000	35	29	0.00	0	0
	> 20,000	43	37	0.00	0	0
	Total	101	82	0.00	0	0
Chlorpropham	< 5,000	23	79	0.00	0	0
	5,000-20,000	35	125	0.00	0	0
	> 20,000	43	162	0.00	0	0
	Total	101	366	0.00	0	0
Chlortoluron	< 5,000	23	79	0.00	0	0
	5,000-20,000	35	125	0.00	0	0
	> 20,000	43	162	0.00	0	0
	Total	101	366	0.00	0	0
Chromium	< 5,000	23	19	0.00	0	0
	5,000-20,000	35	32	0.00	0	0
	> 20,000	43	42	0.00	0	0
	Total	101	93	0.00	0	0

(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	23	79	0.00	0	0
	5,000-20,000	35	125	0.00	0	0
	> 20,000	43	162	0.00	0	0
	Total	101	366	0.00	0	0
Colour	< 5,000	23	108	0.00	0	0
	5,000-20,000	35	294	0.68	2	1
	> 20,000	43	449	0.67	0	1
	Total	101	851	0.59	2	2
Copper	< 5,000	23	82	0.00	0	0
	5,000-20,000	35	132	0.00	0	0
	> 20,000	43	160	0.00	0	0
	Total	101	374	0.00	0	0
Cyanide	< 5,000	23	19	0.00	0	0
	5,000-20,000	35	32	0.00	0	0
	> 20,000	43	42	0.00	0	0
	Total	101	93	0.00	0	0
Cypermethrum	< 5,000	23	79	0.00	0	0
	5,000-20,000	35	125	0.00	0	0
	> 20,000	43	161	0.00	0	0
	Total	101	365	0.00	0	0
Diazinon	< 5,000	23	79	0.00	0	0
	5,000-20,000	35	125	0.00	0	0
	> 20,000	43	162	0.00	0	0
	Total	101	366	0.00	0	0
Dicamba	< 5,000	23	79	0.00	0	0
	5,000-20,000	35	125	0.00	0	0
	> 20,000	43	161	0.00	0	0
	Total	101	365	0.00	0	0
Dichlorbenil	< 5,000	23	79	0.00	0	0
	5,000-20,000	35	125	0.00	0	0
	> 20,000	43	162	0.00	0	0
	Total	101	366	0.00	0	0
Dichlorophen	< 5,000	23	80	0.00	0	0
	5,000-20,000	35	124	0.00	0	0
	> 20,000	43	162	0.00	0	0
	Total	101	366	0.00	0	0
Dichlorvos	< 5,000	23	79	0.00	0	0
	5,000-20,000	35	125	0.00	0	0
	> 20,00	43	162	0.00	0	0
	Total	101	366	0.00	0	0

(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	23	79	0.00	0	0
	5,000-20,000	35	125	0.00	0	0
	> 20,000	43	162	0.00	0	0
	Total	101	366	0.00	0	0
Diquat	< 5,000	23	79	0.00	0	0
	5,000-20,000	35	125	0.00	0	0
	> 20,000	43	161	0.00	0	0
	Total	101	365	0.00	0	0
Diuron	< 5,000	23	79	0.00	0	0
	5,000-20,000	35	125	0.00	0	0
	> 20,000	43	161	0.00	0	0
	Total	101	365	0.00	0	0
Endosulphan - A	< 5,000	23	79	0.00	0	0
	5,000-20,000	35	125	0.00	0	0
	> 20,000	43	162	0.00	0	0
	Total	101	366	0.00	0	0
Endosulphan - B	< 5,000	23	79	0.00	0	0
	5,000-20,000	35	125	0.00	0	0
	> 20,000	43	162	0.00	0	0
	Total	101	366	0.00	0	0
Endosulphan Total	< 5,000	23	79	0.00	0	0
	5,000-20,000	35	125	0.00	0	0
	> 20,000	43	162	0.00	0	0
	Total	101	366	0.00	0	0
Endrin	< 5,000	23	79	0.00	0	0
	5,000-20,000	35	125	0.00	0	0
	> 20,000	43	162	0.00	0	0
	Total	101	366	0.00	0	0
Fenitrothion	< 5,000	23	79	0.00	0	0
	5,000-20,000	35	125	0.00	0	0
	> 20,000	43	162	0.00	0	0
	Total	101	366	0.00	0	0
Fenpropimorph	< 5,000	23	78	0.00	0	0
	5,000-20,000	35	117	0.00	0	0
	> 20,000	43	155	0.00	0	0
	Total	101	350	0.00	0	0
Flumethrin	< 5,000	23	79	0.00	0	0
	5,000-20,000	35	125	0.00	0	0
	> 20,000	43	161	0.00	0	0
	Total	101	365	0.00	0	0

(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)
Fluoride	< 5,000	23	15	0.00	0	0
	5,000-20,000	35	29	0.00	0	0
	> 20,000	43	36	0.00	0	0
	Total	101	80	0.00	0	0
Flutriafol	< 5,000	23	79	0.00	0	0
	5,000-20,000	35	125	0.00	0	0
	> 20,000	43	162	0.00	0	0
	Total	101	366	0.00	0	0
Gamma - HCH (Lindane)	< 5,000	23	79	0.00	0	0
	5,000-20,000	35	125	0.00	0	0
	> 20,000	43	162	0.00	0	0
	Total	101	366	0.00	0	0
Glyphosate	< 5,000	23	79	0.00	0	0
	5,000-20,000	35	125	0.00	0	0
	> 20,000	43	163	0.00	0	0
	Total	101	367	0.00	0	0
Hexachlorobenzene	< 5,000	23	79	0.00	0	0
	5,000-20,000	35	125	0.00	0	0
	> 20,000	43	161	0.00	0	0
	Total	101	365	0.00	0	0
Hydrogen Ion Concentration (pH)	< 5,000	23	178	0.00	0	0
	5,000-20,000	35	859	0.58	0	2
	> 20,000	43	1897	0.05	0	1
	Total	101	2934	0.20	0	3
Iron	< 5,000	23	182	3.85	0	4
	5,000-20,000	35	687	2.33	0	12
	> 20,000	43	1260	2.70	0	16
	Total	101	2129	2.68	0	32
Isoproturon	< 5,000	23	79	0.00	0	0
	5,000-20,000	35	125	0.00	0	0
	> 20,000	43	162	0.00	0	0
	Total	101	366	0.00	0	0
Lead	< 5,000	23	117	5.13	0	3
	5,000-20,000	35	196	2.55	0	3
	> 20,000	43	334	7.19	0	13
	Total	101	647	5.41	0	19
Magnesium	< 5,000	23	17	0.00	0	0
	5,000-20,000	35	30	0.00	0	0
	> 20,000	43	34	0.00	0	0
	Total	101	81	0.00	0	0

(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)
Malathion	< 5,000	23	79	0.00	0	0
	5,000-20,000	35	125	0.00	0	0
	> 20,000	43	162	0.00	0	0
	Total	101	366	0.00	0	0
Manganese	< 5,000	23	111	1.80	2	0
	5,000-20,000	35	288	0.35	1	0
	> 20,000	43	523	0.57	3	0
	Total	101	922	0.65	6	0
MCPA	< 5,000	23	111	0.90	0	1
	5,000-20,000	35	126	1.59	0	1
	> 20,000	43	174	1.72	0	1
	Total	101	411	1.46	0	3
Mecoprop (MCP)	< 5,000	23	94	0.00	0	0
	5,000-20,000	35	125	0.00	0	0
	> 20,000	43	170	0.00	0	0
	Total	101	389	0.00	0	0
Mercury	< 5,000	23	19	0.00	0	0
	5,000-20,000	35	35	0.00	0	0
	> 20,000	43	42	0.00	0	0
	Total	101	96	0.00	0	0
Nickel	< 5,000	23	19	0.00	0	0
	5,000-20,000	35	32	0.00	0	0
	> 20,000	43	42	0.00	0	0
	Total	101	93	0.00	0	0
Nitrate	< 5,000	23	68	0.00	0	0
	5,000-20,000	35	249	0.40	0	1
	> 20,000	43	412	0.00	0	0
	Total	101	729	0.14	0	1
Nitrite	< 5,000	23	66	0.00	0	0
	5,000-20,000	35	247	0.40	0	1
	> 20,000	43	413	0.00	0	0
	Total	101	726	0.14	0	1
Odour (Quantitative)	< 5,000	23	139	0.00	0	0
	5,000-20,000	35	811	0.00	0	0
	> 20,000	43	1848	0.00	0	0
	Total	101	2798	0.00	0	0
op - DDT	< 5,000	23	79	0.00	0	0
	5,000-20,000	35	125	0.00	0	0
	> 20,000	43	162	0.00	0	0
	Total	101	366	0.00	0	0

(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)
Oxidizability	< 5,000	23	47	2.13	0	1
	5,000-20,000	35	56	21.43	0	4
	> 20,000	43	81	6.17	0	3
	Total	101	184	9.78	0	8
Parathion	< 5,000	23	79	0.00	0	0
	5,000-20,000	35	125	0.00	0	0
	> 20,000	43	162	0.00	0	0
	Total	101	366	0.00	0	0
Pentachlorophenol	< 5,000	23	86	0.00	0	0
	5,000-20,000	35	125	0.00	0	0
	> 20,000	43	162	0.00	0	0
	Total	101	373	0.00	0	0
Phosphorous	< 5,000	23	16	0.00	0	0
	5,000-20,000	35	27	0.00	0	0
	> 20,000	43	35	0.00	0	0
	Total	101	78	0.00	0	0
Potassium	< 5,000	23	17	0.00	0	0
	5,000-20,000	35	30	0.00	0	0
	> 20,000	43	34	0.00	0	0
	Total	101	81	0.00	0	0
pp - DDT	< 5,000	23	79	0.00	0	0
	5,000-20,000	35	125	0.00	0	0
	> 20,000	43	162	0.00	0	0
	Total	101	366	0.00	0	0
Propetamphos	< 5,000	23	79	0.00	0	0
	5,000-20,000	35	125	0.00	0	0
	> 20,000	43	162	0.00	0	0
	Total	101	366	0.00	0	0
Selenium	< 5,000	23	19	0.00	0	0
	5,000-20,000	35	32	0.00	0	0
	> 20,000	43	42	0.00	0	0
	Total	101	93	0.00	0	0
Silver	< 5,000	23	19	0.00	0	0
	5,000-20,000	35	32	0.00	0	0
	> 20,000	43	42	0.00	0	0
	Total	101	93	0.00	0	0
Simazine	< 5,000	23	79	0.00	0	0
	5,000-20,000	35	131	0.00	0	0
	> 20,000	43	163	0.00	0	0
	Total	101	373	0.00	0	0

(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	23	17	0.00	0	0
	5,000-20,000	35	30	0.00	0	0
	> 20,000	43	34	0.00	0	0
	Total	101	81	0.00	0	0
Sulphate	< 5,000	23	15	0.00	0	0
	5,000-20,000	35	29	0.00	0	0
	> 20,000	43	36	0.00	0	0
	Total	101	80	0.00	0	0
Surfactants	< 5,000	23	19	0.00	0	0
	5,000-20,000	35	32	0.00	0	0
	> 20,000	43	42	0.00	0	0
	Total	101	93	0.00	0	0
Taste (Quantitative)	< 5,000	23	139	0.00	0	0
	5,000-20,000	35	809	0.00	0	0
	> 20,000	43	1835	0.00	0	0
	Total	101	2783	0.00	0	0
Tecnazene	< 5,000	23	79	0.00	0	0
	5,000-20,000	35	125	0.00	0	0
	> 20,000	43	162	0.00	0	0
	Total	101	366	0.00	0	0
Temperature	< 5,000	23	94	0.00	0	0
	5,000-20,000	35	208	0.00	0	0
	> 20,000	43	421	0.00	0	0
	Total	101	723	0.00	0	0
Terbutryne	< 5,000	23	79	0.00	0	0
	5,000-20,000	35	125	0.00	0	0
	> 20,000	43	162	0.00	0	0
	Total	101	366	0.00	0	0
Tetrachloromethane	< 5,000	23	79	0.00	0	0
	5,000-20,000	35	125	0.00	0	0
	> 20,000	43	161	0.00	0	0
	Total	101	365	0.00	0	0
Tetrachloroethene	< 5,000	23	79	0.00	0	0
	5,000-20,000	35	125	0.00	0	0
	> 20,000	43	161	0.00	0	0
	Total	101	365	0.00	0	0
Total PAH	< 5,000	23	121	1.65	0	1
	5,000-20,000	35	179	0.56	0	1
	> 20,000	43	213	0.00	0	0
	Total	101	513	0.58	0	2

(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	23	79	0.00	0	0
	5,000-20,000	35	125	0.00	0	0
	> 20,000	43	162	0.00	0	0
	Total	101	366	0.00	0	
Total Trihalomethanes (THMs) (iii)	< 5,000	23	185	*****	*****	14
	5,000-20,000	35	340	*****	*****	30
	> 20,000	43	491	*****	*****	35
	Total	101	1016	*****	*****	79
Trichloroethene	< 5,000	23	79	0.00	0	0
	5,000-20,000	35	125	0.00	0	0
	> 20,000	43	161	0.00	0	0
	Total	101	365	0.00	0	0
Trifluralin	< 5,000	23	79	0.00	0	0
	5,000-20,000	35	125	0.00	0	0
	> 20,000	43	162	0.00	0	0
	Total	101	366	0.00	0	0
Turbidity	< 5,000	23	105	0.95	0	1
	5,000-20,000	35	350	0.29	0	1
	> 20,000	43	596	0.50	0	3
	Total	101	1051	0.48	0	5
Zinc	< 5,000	23	83	0.00	0	0
	5,000-20,000	35	131	0.00	0	0
	> 20,000	43	160	0.00	0	0
	Total	101	374	0.00	0	0
Total (ii) (iii)	< 5,000	23	6261	*****	*****	16
	5,000-20,000	35	13200	*****	*****	33
	> 20,000	43	21050	*****	*****	41
	Total	101	40511	*****	*****	90

(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

Since 1996 improvement work has been completed, or is substantially complete, at the following water treatment works:

Altnahinch WTW
Ballinrees WTW
Ballysallagh WTW
Carmony WTW
Castor Bay WTW
Caugh Hill WTW
Derg WTW
Dungonnel WTW
Dunore Point WTW
Glenhordial WTW
Killea WTW
Killyhevlin WTW
Killylane WTW
Lough Bradan WTW
Lough Fea WTW
Lough Macrory WTW
Woodburn WTW
Rathlin Island WTW

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

Clay Lake WTW
Moyola WTW
Silent Valley WTW
Fofanny WTW
Carran Hill WTW
Forked Bridge WTW
Seagahan WTW



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