



Drinking Water Quality
Annual Report 2012



Introduction and Foreword

I am pleased to present Northern Ireland Water's (NI Water) Annual Drinking Water Quality report covering the calendar year 2012. This is our ninth annual review on the quality of drinking water in Northern Ireland since new regulations came into force in January 2004. The Report shows that we are continuing to deliver a very high drinking water quality to our customers.

NI Water aims to provide high quality drinking water, in a cost effective manner, to meet the requirements of both existing and future customers. By doing this we contribute to the health and wellbeing of the community and the needs of commercial customers in a sustainable way.

Drinking water is carefully monitored and tested for quality. This report summarises NI Water's results from 1 January 2012 to 31 December 2012 to meet the requirements of the Regulations under which we operate. During this reporting period, 99.80% of all tests carried out on samples taken from customers' taps and authorised supply points, complied with the regulatory standards assessed using the Mean Zonal Compliance (MZC) method of assessment. MZC is the method required by the drinking water regulator in Northern Ireland. This assessment demonstrates that NI Water is maintaining consistently good drinking water quality.

As part of NI Water's reporting requirements, this report also incorporates data to meet the requirements of the Water Supply (Water Fittings) Regulations (NI) 2009.

Looking holistically across all of NI Water, not only are we maintaining this high quality drinking water to our customers, but we are also returning the highest ever quality of treated wastewater back to the environment.

Our ongoing investments in water treatment, storage and mains have maintained regulatory compliance and improved our quality of service. Whilst we continue to make progress, we need to continue to invest for the future to meet the lower regulatory compliance level for lead in 2014.

During 2012 we detected elevated levels of pesticides in our catchments, largely caused by wash-off during the very wet weather events we experienced. We are liaising closely with the farming community and our other stakeholders to try and minimise the chances of reoccurrence of this in the future.

Our capital investment programme for the reporting period is detailed by council area in Appendix 3.

We welcome these challenges and will continue to work closely with our economic and environmental regulators, the Consumer Council and other stakeholders throughout this process.

I trust you will find this report informative and relevant to your needs. As we gain the benefits of the ongoing capital investment delivered by NI Water, you can be assured of our commitment to maintaining and where possible improving the quality of the drinking water delivered to our customers. NI Water exceeds the targets placed upon it to comply with regulatory water quality standards, and will continue to improve our service to customers in the future.

Trevor Haslett
Chief Executive Officer



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Drinking Water Quality

Water Quality Standards

During 2012 Drinking Water Quality in Northern Ireland was assessed against standards set in the Water Supply (Water Quality) Regulations (Northern Ireland) 2007 as appended by the 2010 updated regulations. The regulations incorporate the requirements of the European Commission's Drinking Water Directive 98/83/EC (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 NI Water 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
- the provision and publication of information.

NI Water assesses standards for water quality against the parameters 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 aesthetically acceptable.

The Regulations 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. These contraventions are reported to the Drinking Water Inspectorate, investigated by NI Water, and prompt remedial action taken where appropriate.

NI Water has a monitoring programme in place which covers raw waters, water at various treatment stages, drinking water in distribution and at customer tap. NI Water liaises with its customers on a wide variety of issues and where there is an exceedance of a regulatory parameter, investigations and remedial work is carried out to ensure that drinking water is regulatory compliant.

Where the monitoring programme highlights a problem with the customer's plumbing, NI Water informs the customer, the local Environmental Health Officer and the Drinking Water Inspectorate.

To assist in understanding the contents of this report, a glossary of technical terms is provided (Appendix 6).

Mean Zonal Compliance (MZC)

Assessment of the quality of water supplied to NI Water's customers is monitored using a measurement known as "Mean Zonal Compliance".

This is the average water quality supplied to our customers and is based on 39 specified individual or combined parameters measured at either customers' taps or authorised supply points. These parameters are specified by the Drinking Water Inspectorate (DWI).

This method provides a simple means of summarising drinking water compliance and comparing year on year performance, and gives a consistent method of comparing water quality across the UK. It is supported by the DWI as an industry comparator allowing direct comparisons of results.

Drinking Water Quality Summary – Year on Year

Compliance assessed against the "Water Supply (Water Quality) Regulations (Northern Ireland) 2010".

Reporting Year	2005	2006	2007	2008	2009	2010	2011	2012
Mean Zonal Compliance (i) (average water quality at customer tap at parameter level)	99.02%	99.34%	99.32%	99.50%	99.76%	99.82%	99.83%	99.80%
Water Treatment Works Water Quality	99.89%	99.90%	99.92%	99.95%	99.92%	99.99%	100.00%	99.98%
Overall Quality at all NI Water Sites and Customer Taps	99.49%	99.64%	99.60%	99.69%	99.80%	99.87%	99.84%	99.77%

Notes

i. Mean Zonal Compliance (MZC) – method of assessment used across the UK, and supported by the Drinking Water Inspectorate (DWI) as an industry comparator. In agreement with DWI, % MZC figures reported for Northern Ireland from 2007 to 2011 have been adjusted from those previously reported to standardize the reporting of the % MZC value for the other pesticides parameter, to enable more accurate year-on-year comparisons to be made.

Protecting Our Customers

Drinking Water and Health

The safety of drinking water is a paramount public health concern. It is a tribute to the skills and expertise of colleagues working for drinking water providers, regulators, health authorities and local authorities that the safety of drinking water in Northern Ireland is something that the public is able to take for granted.

The Drinking Water Liaison Group (DWLG) is a multi-agency group which considers public health issues associated with the drinking water supply. The Group, which is unique in the UK context, draws its membership from the main stakeholder organisations including the Department of Health, Social Services and Public Safety, the Public Health Agency, the Drinking Water Inspectorate, the Northern Ireland Public Health Laboratory, the Chief Environmental Health Officers' Group and NI Water.

The group produced a comprehensive guidance document on "Drinking Water and Health" aimed at professionals from a variety of backgrounds who share an interest and involvement in the safety of drinking water. The purpose of this joint guidance is to set out the roles and responsibilities of the key players, to describe the wider context to the provision of safe drinking water, to detail the arrangements and protocols in place to monitor compliance with standards and to respond to an emergency or incident situation.

This guidance is a "living document" that will be regularly reviewed and updated.

The guidance document can be found at:

www.niwater.com/drinkingwaterguidance.asp

Lead Monitoring for Vulnerable Customers

The regulatory limit for lead is reduced from 25µg/l to 10µg/l at the end of 2013. In advance of this reduction, from 2011 NI Water (in liaison with the Northern Ireland Education Authorities) has put in place a monitoring programme to identify potential high lead levels for schools.

Primary Schools in Northern Ireland have been prioritised based on the age of the school and dates of any building modification and sampled as part of this programme. Any school where lead levels were found to be above the future 10µg/l standard has been investigated and the lead pipework replaced by NI Water and the Education Authorities, as appropriate. During 2012, 5 primary schools had this plumbing replaced.

This monitoring programme is being expanded to children's hospitals and children's homes during 2013. Other non-domestic locations where children spend a significant amount of their time will be considered as they are identified.

Source to Tap

Drinking Water Safety Plans

A Drinking Water Safety Plan (DWSP) is the most effective way of ensuring that a water supply is safe for human consumption and that it meets the health based standards and other regulatory requirements. It is based on a comprehensive risk assessment and risk management approach to all the steps in a water supply chain from catchment to consumer.

The primary objectives of a DWSP in protecting human health and ensuring good water supply practice are the minimisation of contamination of source waters and effective treatment using appropriate processes. DWSPs are used to map water supply systems, identify the hazards at each stage of the system from catchment, through treatment and the distribution system, to the customer's tap, and to assess the risks that these hazards pose.

The Water Industry has adopted the DWSP approach to risk management from the raw water source, through water treatment, distribution and to our customer's taps. NI Water has put in place systems to identify hazards, assess risks and implement mitigation measures, which could potentially threaten each stage of the water supply process.

NI Water works with the Northern Ireland Environment Agency (NIEA), the Drinking Water Inspectorate, Forestry Service and other Non-Government Organisations to protect the raw water sources from contamination.

The outputs of these plans – "The Drinking Water Safety Plans" themselves continue to be embedded into company policies and procedures and are reviewed using a risk based approach each year.

NI Water uses the DWSP risk assessments to inform the investment strategy for drinking water.



Sustainable Catchment Area Management Planning Northern Ireland (SCAMP NI)

SCAMP NI was established at the NI Water Environmental Stakeholders Forum held in early 2011. NI Water presented the vision of SCAMP NI and invited proposals from a wide range of organisations on how they could work with NI Water to deliver a more sustainable approach to catchment management. The project aims to deliver the optimum quality and quantity of raw water to NI Water's water treatment works through the reduction of diffuse pollution and improved land management practices.

This protects drinking water quality and sources, avoiding the requirement for more capital intensive solutions, and mitigates against increased energy usage and carbon emissions.

NI Water must comply with EU drinking water standards. Key elements of SCAMP NI focus on reducing the amount of chemicals and contaminants that are found within the raw water catchments. NI Water is also seeking to use the ecosystem to provide natural water treatment "services" to reduce the contaminants which reach the Water Treatment Works (WTW) abstraction point. This means less reliance on energy intensive treatment solutions to meet drinking water standards, and reduces the risk of compliance failure.

SCAMP NI contributes to reducing the carbon used by NI Water by reducing treatment needs and pumping requirements. This in turn means that NI Water reduces its electricity consumption.

SCAMP NI is aligned with the objectives of the Biodiversity Strategy and The Water Framework Directive River Basin Management Plans for Northern Ireland.

NI Water works with the following stakeholders:

- Department of Agriculture and Rural Development
- Farming Groups / Ulster Farmers Union
- Forestry Service
- Mourne Heritage Trust/NIEA/N Fire and Rescue Service
- The Royal Society for The Protection of Birds (RSPB)
- Ulster Wildlife Trust
- The Woodlands Trust

A SCAMP NI Steering Group has been set up with representatives of all of the above stakeholders. The aim of the group is to ensure that SCAMP NI actions are aligned with best practice and the aims and objectives of all stakeholders.

Environmental Management System (EMS) ISO 14001

NI Water's Environmental Management System (EMS) has been certified to ISO 14001 and externally accredited since 2003.

The Environmental Management System greatly assists NI Water in maintaining environmental compliance and continual improvements at its over 3500 sites whilst providing high quality water and sewerage services to Northern Ireland.

Control of Pesticides

Unfortunately on occasion the incorrect use and disposal of pesticides has led to higher than normal levels of pesticides in raw water supplies.

To better educate the community, NI Water has been liaising with the other environmental stakeholders including:

- Department of Agriculture and Rural Development
- Loughs Agency Northern Ireland
- Environment Agency
- Rivers Agency
- Ulster Farmers Union

This liaison has resulted in the production of an educational leaflet which it is hoped will reduce the possibilities of contamination from pesticides.

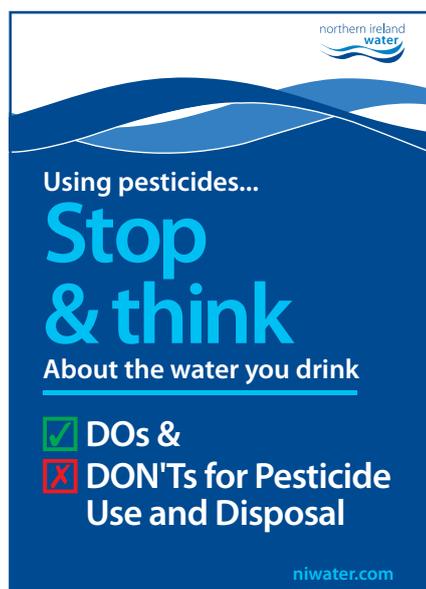
Mains Rehabilitation

NI Water has identified the need to deliver a significant programme of water mains rehabilitation and other works across its ageing network. The works are necessary to ensure the efficient and cost effective operation of its water supply system in the immediate future and longer term. It is also to ensure adequate levels of water quality and customer supply.

In delivering these objectives, NI Water's delivery mechanism is the Water Mains Rehabilitation Framework. This consists of two Contractors and has delivered over 1000Km of water mains in the past three years. The next investment cycle is Price Control 13 (PC13), which will deliver 445Km of water main infrastructure over the next two years. The rehabilitation framework delivers water mains across Northern Ireland as identified by the programme of work from zonal studies.

The drivers for this programme of work are maintenance of the systems, pressure management, reduction in interruption to supplies, better water quality, reduction in levels of leakage and allowance for growth in demand. NI Water considers a range of techniques for the installation of the rehabilitated mains. These include relining of the existing asset through online replacement by pipe insertion or pipe bursting, to off line replacement by directional drilling or open cut techniques.

Where possible, cost effective, trenchless technologies are used to replace or rehabilitate water mains to reduce the disruption caused by open-cut trench construction. Likely construction methods include pipe-bursting, slip-lining, directional drilling, spray lining and open cut. The most appropriate technology is selected for the various work packages and associated ground and traffic conditions.



Monitoring Drinking Water Quality

The Regulations necessitate a thorough and 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 monitoring arrangements are audited by the Drinking Water Inspectorate (DWI). 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.

Under the Regulations, samples to be analysed for parameters which do not change in the supply watermain may be collected from Authorised Supply Points. These samples are collected from the final distribution point of the Water Treatment Works, and are considered under the Regulations to be equivalent to samples collected from the customer tap.

All samples are carefully collected, handled and transported to ensure that they accurately represent the water quality which customers receive. NI Water uses 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 upon customers to take a sample.

Samples collected from customers' taps are taken at random addresses in each water supply zone. A water supply zone is a designated area with a population of no more than 100,000 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 50 water supply 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. pH (Hydrogen ion)
- chemical, e.g. Iron, Manganese, Lead and Nitrate
- 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 Prescribed Concentrations or Values (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 may be scheduled in the water supply zone for the parameter involved. NI Water will at all times liaise with the DWI and the Public Health Agency to ensure customer safety.

Sufficiency of Supply

Approximately 810,000 domestic, agricultural, commercial and business properties in Northern Ireland are connected to the public water supply – this equates to around 99.9% of the total population. This entailed supplying an average of about 563 million litres of high quality drinking water to customers every day during 2012. For this NI Water utilised approximately 34 sources which include upland Impounding Reservoirs, Boreholes, Rivers and Loughs.

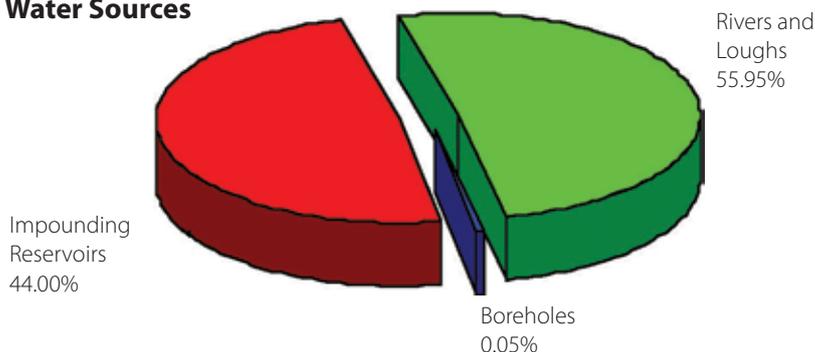
The Water and Sewerage Services (Northern Ireland) Order 2006 requires NI Water to prepare and maintain a water resources management plan to indicate how water resources will be developed and managed to enable the undertaker to meet its obligations.

The Order requires NI Water to review the plan on an annual basis and prepare a revised plan every 5 years or when there is a material change in circumstances.

NI Water has recently completed a Water Resource Management Plan to meet this obligation and published this in March 2012.

For the period of this report, water supplies in Northern Ireland were obtained from three types of source, as shown: -

Raw Water Sources



Drinking Water Inspectorate - Technical Audit

The Drinking Water Inspectorate (DWI), a unit within the Northern Ireland Environment Agency, has an independent responsibility to audit drinking water quality compliance against the standards set in the Regulations.

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

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

In 2012, the technical audit inspection programme included:

- an audit of Glenhordial Water Treatment Works;
- an audit of NI Water's operational function for water networks;
- an audit of Purdysburn SR;
- a vertical audit of the Westland House Laboratory;
- an audit of the Laboratory Information Management System (LIMS);
- an audit of a Drinking Water Safety Plan; and
- progress reporting on agreed follow-up action including non-trivial parameter contraventions.

DWI made a number of recommendations and suggestions and NI Water has followed up on these issues. DWI will report on the inspections and the quality of water supplied by NI Water in its annual report, due to be published later in the year.

DWI is located at Klondyke Building, Cromac Avenue, Gasworks Business Park, Lower Ormeau Road, Belfast BT7 2JA.

Water Quality Events

NI Water is required under the Drinking Water Regulations to notify the DWI whenever an event occurs that has the potential to impact on drinking water quality. NI Water fully investigates all events and provides the DWI with a substantive report for each. After investigation the event may be shown not to have had a detrimental effect on water quality and is classified in the Drinking Water Inspectorate's Report as "Not Significant" or "Minor" as opposed to "Significant", "Serious" or "Major".

A full list of all Water Quality Events notified to the DWI during 2012 is detailed in Appendix 4.

Example Event

During 2012 NI Water was alerted to the potential contamination of drinking water due to the dumping of fuel laundering waste on the Armaghbrague Road, Armagh. This Event was notified to DWI as there was a potential risk for contamination of the water supply, however all samples taken found the water supply to be satisfactory.

Investigations showed that 11 tanks of fuel laundering waste had been dumped on the Armaghbrague Road. Some of the tanks were damaged and caused a liquid material to flow into a pressure reduction valve chamber. This had the potential to affect 312 domestic properties and 148 commercial properties supplied by the Armaghbrague DMA.

Close liaison between NI Water, NIEA Water Management Unit and Armagh Environmental Health led to positive pressure in the system being maintained and contractors being able to completely clean the chambers and remove the residue from the roads to avoid any further environmental contamination.

This was declared by DWI to be a "Not Significant Event" as there were no exceedances and all contamination was contained and dealt with.

Regulatory Processes

Where NI Water has been assessed to not comply with its regulatory duties, the regulations make provision for DWI to use a range of statutory processes to ensure that compliance is achieved. Details of their Enforcement and Prosecution Policy are available on their website at: www.doeni.gov.uk

As part of the enforcement process DWI may commence with the issue of a 'Consideration of Provisional Enforcement Order' (CPEO) to NI Water, whereby the company is required to submit an undertaking to demonstrate what steps it has taken (or is going to take) to ensure compliance with the requirements of the regulations.

Such requirements cover a range of regulatory issues from sample scheduling to remedial measures to bring about compliance with water quality standards.

Regulatory Enforcement

DWI put in place three CPEOs during 2012. The first was in relation to contraventions of the regulatory standard for the pesticide MCPA in the final water from Dorisland WTW; the second was in relation to contraventions of the regulatory standards for aluminium, iron, hydrogen ion, Trihalomethanes (THMs) and turbidity in Caugh Hill WTW's final water and in the related supply area; and the third was in relation to contraventions of the regulatory standard for Trihalomethanes (THMs) in the Lough Bradan WTW supply area.

Due to a delay in the delivery of undertakings relating to Caugh Hill WTW a Provisional Enforcement Order (PEO) was issued.

Five CPEOs were closed during 2012. Three CPEOs issued in 2010 were related to iron contraventions in the Dorisland, Altmore and Altnahinch WTWs' supply areas; and two CPEOs issued in 2011 relating to:

- a failure to comply with regulation 9(3) on the requirement to ensure samples are taken and analysed to reflect an even distribution of results for the year; and
- contraventions of the regulatory standard for taste and odour in the Killyhevin WTWs supply area.

Quality Assurance

The Regulations require water quality to be monitored using analytical systems which can demonstrate that appropriate accuracy is achieved and maintained. NI Water attaches great importance to the integrity of the analysis and for this reason applies strict 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 NI Water's performance is included in the Inspectorate's annual report.

NI Water has achieved the requirements of the Drinking Water Testing Specification, (DWTS). This is 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, both of NI Water's Testing laboratories have attained the necessary standard of analytical excellence and have been awarded United Kingdom Accreditation Service (UKAS) accreditation.

UKAS auditors carry out an annual audit of the laboratories' quality system.

In order to rapidly detect *Cryptosporidium* oocysts NI Water has a *Cryptosporidium* Analytical Unit at its Altnagelvin Laboratory. This Unit has Drinking Water Inspectorate approval and is instrumental in the development of new accredited methods for the water industry. This unit has also been awarded United Kingdom Accreditation Service (UKAS) accreditation.

NI Water laboratories provide an accredited analytical service to external customers for both drinking water quality testing and wastewater quality testing.

Use of Technology

To assist in its ability to audit its sampling programme, NI Water has put in place a Personal Digital Assistant (PDA) based system to produce an enhanced audit trail and to eliminate data transcription errors.

The system uses ruggedised PDAs which incorporate mobile phone technology for communication. A built in barcode scanner is used to scan the labels on the sample bottles and GPS (Global Positioning System) is used to give an accurate location fix and time for each sample as it is collected. As the sampler returns to the laboratory, this data is downloaded with all the ancillary audit data onto NI Water's Laboratory Information Management System (LIMS) where it updates the existing sample information.

Within the laboratory environment the majority of analytical results are transferred directly into LIMS via direct data capture from the laboratory instrumentation. This information transference minimises the possibility of transcription errors and gives an enhanced audit trail.

Water Quality Summary

NI Water Sites in Service

During 2012, the numbers of NI Water sites in service were:

Location Type	Number in Service
Water Treatment Works	25
Service Reservoirs	326
Water Supply Zones	50
Authorised Supply Points (see glossary)	25

Overall Water Quality

214,017 microbiological, physical and chemical tests were carried out for mandatory and indicator parameters on water samples taken from water treatment works, service reservoirs and customers' taps in the year 2012. 213,741 of these tests complied with the regulatory standards giving an overall percentage compliance of 99.87%. Under the Regulations a subset of these parameters is used to assess Mean Zonal Compliance at customer tap (as set out in Appendix 2).

Microbiological Quality

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. NI Water has developed a disinfection policy for water treatment and individual disinfection statements for each water treatment works. This will continue to ensure that all water supplied by NI Water is adequately disinfected, and water supplied to customers is safe and pathogen free.

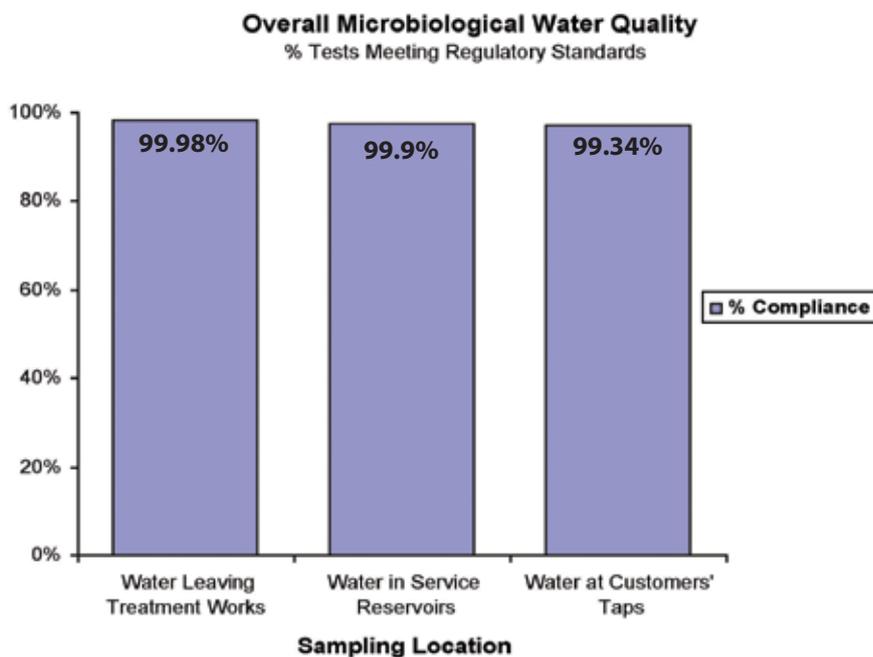
To ensure the effectiveness of the treatment and chlorination process, the wholesomeness of treated water is regularly examined to ensure the absence of total coliforms and faecal coliforms (E. coli) at water treatment works, service reservoirs and in the distribution system at customers' taps.

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 itself, in particular with mixer type 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.

If the contamination is found to be due to the tap or internal plumbing NI Water will inform the customer in writing of the reason for the failure so that they can take appropriate action. A copy of the letter is also provided to the Public Health Agency, the local Environmental Health Officer and the DWI.

A summary of the microbiological quality of water supplied in 2012 is given below.



Physical and Chemical Quality at Customer tap

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.

30,362 mandatory physical and chemical tests were carried on water samples taken at customers' taps or authorised supply points in the year 2012. 30,266 of these tests complied with the regulatory standards giving a compliance of 99.68% for physical and chemical tests.

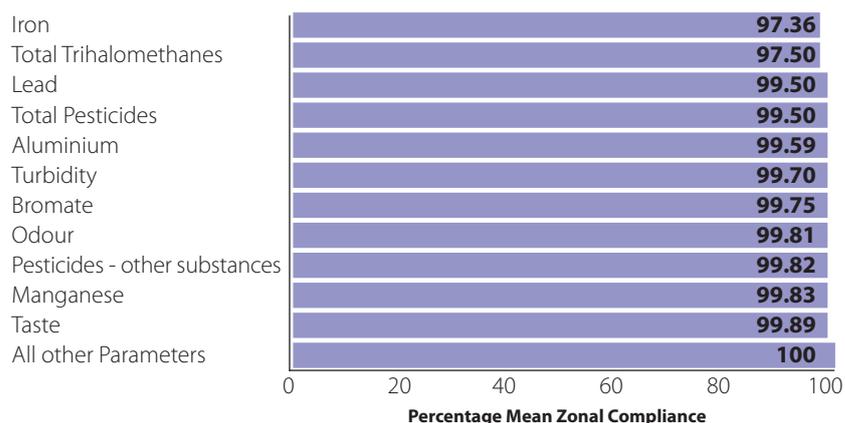
Appendix 2 shows the extent of NI Water's compliance with the regulatory standards at both customer tap and authorised supply point. For most parameters, compliance is judged on the basis of the results of individual samples.

If a single sample exceeds the PCV, that supply is deemed not to comply with the regulatory standards, even if the cause is outside NI Water's 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.

Appendix 2 also shows the Mean Zonal Compliance achieved by NI Water for 2012.

Mean Zonal Compliance by Chemical Parameter



Overall Water Quality

Overall Water Quality					
	Number of Analytical Tests	Number of Tests Exceeding PCV	% Compliance with Regulatory Standards	Number of Tests Exceeding PCV or Authorised Departures	% Compliance with Regulatory Standards including Authorised Departures
Water Leaving Treatment Works					
Bacteriological Analysis	13,234	3	99.98	3	99.98
Chemical Analysis	232	0	100.00	0	100.00
Indicator parameters	33,085	11	99.97	11	99.97
Total	46,551	14	99.97	14	99.97
Water in Service Reservoirs					
Bacteriological Analysis	33,380	34	99.90	34	99.90
Indicator parameters	66,760	0	100.00	0	100.00
Total	100,140	34	99.97	34	99.97
Water at Customers' Taps or Authorised Supply Points					
Bacteriological Anal inc Coliforms	9,800	65	99.34	65	99.34
Zone Chemical Analysis	20,203	82	99.59	82	99.59
Supply Point Chemical Analysis	10,159	14	99.86	14	99.86
Indicator parameters	27,164	67	99.75	67	99.75
Total	67,326	228	99.66	228	99.66
Total Mandatory Parameters	87,008	198	99.77	198	99.77
Total Indicator Parameters	127,009	78	99.94	78	99.94
Overall Water Quality Total	214,017	276	99.87	276	99.87

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

Water Quality Issues

During 2012 the following main parameters exceeded their prescribed concentration or value.

Aluminium

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. These treatment processes are regularly reviewed and upgraded where required to lower the aluminium levels to below regulatory levels.

Iron

The iron standard has been set for aesthetic reasons as levels persistently above the standard can give rise to discoloured water and particulate matter. Where the standard for iron has not been met, this may be due to problems of corrosion of iron watermains. There is an ongoing proactive programme of flushing and cleaning of the distribution system to minimise the problem. In addition, NI Water has an ongoing Water Mains Rehabilitation Programme in which supply zones that experience water quality and other supply problems are subjected to a detailed zonal study. These detailed zonal studies include the analysis of historic water quality data (including iron) and customer complaint information and the implementation of targeted water quality 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 NI Water or its contractors.

Lead

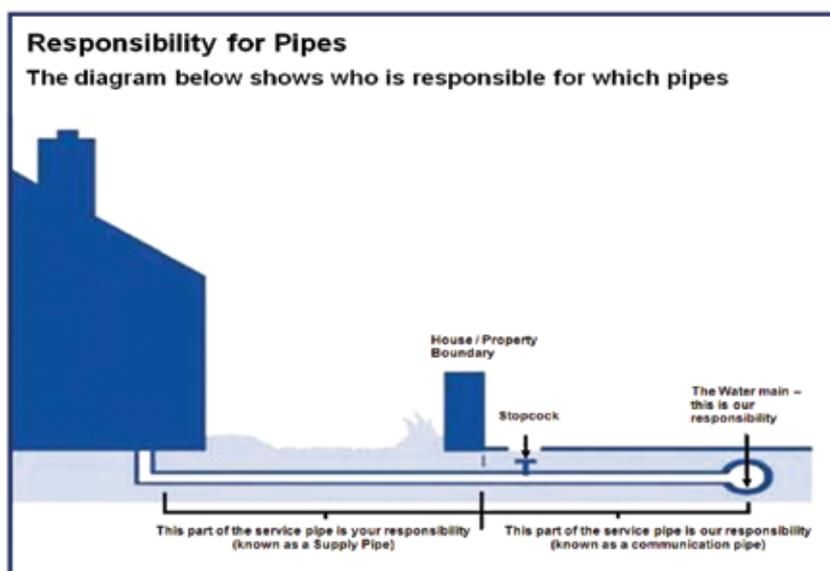
Water leaving treatment works and in the distribution systems contains only trace amounts of lead. However, where lead has been used for service pipes between the watermain and the kitchen tap or in domestic plumbing, there may be a risk of concentrations at the customers' tap exceeding the lead standard.

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, the customer, the Public Health Agency, the local Environmental Health Officer and DWI are notified. Where it is found that the exceedance is attributable to a lead service pipe NI Water will replace free of charge, any of its lead pipes supplying the property. It will be the responsibility of the property owner to replace any lead pipework on the property.

NI Water will also replace free of charge, any of its lead pipes supplying 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.

Where water mains are being rehabilitated, NI Water replaces any lead communication pipes encountered to the boundary of the property and the property owner is informed in writing.

The current lead PCV (Prescribed Concentration or Value) reduces significantly from the current limit of 25µg/l to 10µg/l at the end of 2013. All non-borewell supplies in Northern Ireland are now being treated with a small amount of orthophosphoric acid, which forms a protective coating over lead pipes, to minimise levels of lead in the water supply. This dosing is reviewed annually for each water treatment works and agreed with the DWI.





The effectiveness of the dosing can be seen in the graph above, showing the optimisation of the dosing from the water treatment works to meet the new regulations.

A leaflet on lead in drinking water is available from the NI Water website at www.niwater.com/about-your-water

Amongst other details, this leaflet explains who is responsible for replacing each part of the lead in the domestic system.

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.

Pesticides

Pesticides include insecticides, herbicides, fungicides and algacides. These can find their way into watercourses from a variety of sources, mainly from use in agriculture or weed control. NI Water has an ongoing pesticide monitoring programme and currently analyses samples for 47 individual pesticides.

NI Water liaises with other regulatory bodies in Northern Ireland such as the Northern Ireland Environment Agency (NIEA) regarding the control of pesticide usage.

The pesticide exceedances were mainly for one of the more commonly used pesticides – MCPA, along with single exceedances of Metoxuron and Linuron.

NI Water is engaged on an ongoing series of catchment management plans as part of its overall Drinking Water Safety Plans which include looking at pesticide usage and control.

Total 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 by disinfection using chlorine is NI Water's main priority. NI Water's water abstractions are predominantly drawn from surface sources, which can contain these natural organic materials.

NI Water's ongoing water treatment works investment programme is designed to provide improved treatment to reduce organic matter prior to chlorination and thereby reduce THM levels.

Further improved compliance over all of Northern Ireland is expected as improvements to water treatment works and the distribution system continue.

In addition to its ongoing programmes of work, NI Water is constantly reviewing its operational procedures to reduce THM levels in the distribution system, whilst maintaining microbiological quality.

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 pipe work usually restores water quality.

Taste and Odour

Under direction from DWI, NI Water has changed the methodology used for testing for taste and odour. This has led to a number of low level exceedances from 2010 that would not have previously been recorded.

During 2009 NI Water had 1 taste exceedance and 1 odour exceedance. Under the new analytical methodology used from 2010, this rose considerably to 6 taste exceedances and 24 odour exceedances in 2011 and 2 taste exceedances and 3 odour exceedances in 2012. However, this was not due to a lowering in the quality of water supplied, but due to the change in the measurement methodology.

Summary

All exceedances 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.

Further information

Various information leaflets giving more details of water information may be found at www.niwater.com/about-your-water

Investing for the Future

Asset Management

In May 2010 the DRD Minister provided Social and Environmental Guidance which outlined the priorities for investment for NI Water for the period 2010 to 2013 (PC10). The guidance set a Mean Zonal Compliance target of 99.7% for water quality during this period. This guidance (and target) has subsequently extended to cover the period 2013 to 2015 (PC13). NI Water has developed a business plan (PC10) to deliver this investment. This is largely a continuation of the investment plans made during the period 2007 to 2010. The water quality section of the plan includes laying 900km of new or renewed watermains and the upgrading of water treatment works, service reservoirs and pumping stations. We are approaching the end of the PC10 period and are on target to deliver the planned capital investment.

These investments will seek to maintain and locally improve our water quality compliance as well as improving levels of service to customers, for example, for customers suffering low water pressure. In addition to the investment targeted at quality and enhancement improvements, capital investment is also targeted at maintaining the serviceability of our assets, now and in the future.

NI Water operates a formal asset management system to ensure that investment is properly targeted and prioritised.

NI Water supplies potable water to all of Northern Ireland. A breakdown of water quality by local council area detailing capital investment during the reporting period is given at Appendix 3.

Research, Development and Innovation

NI Water, through its Research, Development and Innovation (RDI) section, undertakes a programme of applying research and technology development. NI Water's RDI investment is targeted to meet business needs by facilitating the transfer of technology and systems developed by others. It is predominantly focussed on incremental innovation, and optimisation i.e. producing more out of existing assets. Innovation, where appropriate, is employed to support the development of standards and best practice, across all of NI Water's activities.

This programme is driven by the desire to improve quality, whilst making efficiency gains. It contains projects designed to improve drinking water quality and compliance of our consented discharges while protecting the environment and providing an improved service to our customers.

NI Water, together with other UK Water Companies, employs research bodies such as the United Kingdom Water Industry Research Ltd (UKWIR) and the Water Research Centre (WRC) to provide a collaborative programme of research. This is tailored to suit the needs of the UK water industry and where required, specifically to suit the needs of NI Water. The research programme covers a wide range of business areas including; Best Practice, Climate Change, Regulation and Sustainability.

The RDI section also manages projects which require industry specialists to provide expertise to bridge knowledge gaps and solve problems specific to NI Water.

Through the RDI section NI Water collaborates with, and supports local and UK university research. NI Water is a member of Queens University Environmental Science and Technology Research Centre (QUESTOR) which is an international environmental research organisation based at Queens University Belfast.

NI Water has benefited from a substantial grant as a result of this collaboration and has received a fully financed post doctorate researcher for two years employed on the development of our carbon management strategy.

Water Supply (Water Fittings) Regulations (NI) 2009

Water Regulation Background

NI Water was granted an operating license to provide water and sewerage services in Northern Ireland on 1st April 2007 replacing the former Water Service which was an executive agency within DRD. This change in the delivery of water and sewerage services in Northern Ireland was as a result of new legislation – The Water and Sewerage Services (Northern Ireland) Order 2006.

The Water Regulations were made by the Department for Regional Development (DRD) under Articles 114 and 300(2) of The Water and Sewerage Services (NI) Order 2006 and came into operation on 3rd August 2009.

NI Water has an obligation to ensure the Regulations are being complied with and to publish a report on activities associated with customer compliance no later than the 30th June every year.

The Water Regulations are primarily designed to prevent the misuse, waste, undue consumption or erroneous measurement of water and most importantly to prevent contamination of drinking water. Owners and occupiers of premises and anyone who installs plumbing systems or water fittings have a legal duty to ensure that the systems satisfy the regulations. Advanced notice must be given in most cases of proposed installations, so architects, building developers and plumbers have to follow the regulations on behalf of future owners or occupiers.

Description	Number
*Total number of Domestic and Non-Domestic Inspections	997
*Total number of Contraventions recorded	2440
*Total number of Contraventions rectified	1015
*Total Number of outstanding contraventions	1425

*calendar year

For the purpose of this return:

- DRD Water Policy Division (WPD) is deemed to be the Regulator for all activities associated with these Water Regulations: NI Water and WPD meet quarterly to discuss water regulations issues, enforcement activities and contraventions.
- The Water Regulation Advisory Scheme (WRAS) list of SIC codes with related fluid categories shall be used to define categories of non-domestic properties.

NI Water's implementation of these regulations is detailed at Appendix 5 herein. Detailed above are the numbers of inspections completed, contraventions observed and contraventions awaiting customer resolutions.

Public Information

Drinking Water Register

A Drinking Water Register is produced on request showing detailed water quality results for each water supply zone.

The Register may be requested, free of charge, during normal working office hours through the customer relations centre below.

Customers may request 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 address listed below:

Customer Relations Centre
4th Floor
Capital House
3 Upper Queen St
Belfast BT1 6PU

Customers can alternatively contact the Customer Relations Centre on our Wateline:
08457 440088

Customers who have hearing difficulties can also contact us via type talk on:
08457 440088

Calls to these numbers are charged at the local rate.

Customers may also contact Customer Services by email on:
waterline@niwater.com

Further information for customers may be obtained at the following website:
www.niwater.com

This site also contains electronic versions of recent Water Quality reports.

Customer Services

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

Customer Services produces a range of leaflets about services provided, including those designed to give customers the opportunity to learn more about water quality standards, water efficiency and the need to use water wisely. The leaflets can be obtained from the Customer Relations Centre or may be viewed on the above Website at www.niwater.com/about-your-water/

Major Incident Information

In a major incident or emergency situation (such as the sudden flooding following heavy rainfall in June 2012) NI Water can experience a massive increase in demand for information by our customers which would overwhelm the normal systems in place. In response to these scenarios NI Water has additionally put in place the following methods of passing information to customers:

HVCA (High Volume Call Answering)

Until recently NI Water has been limited in how many telephone callers can be answered and how much information it can provide when customers were trying to contact us in a major incident. To increase the number of calls answered and the amount of information provided, NI Water has recently installed a High Volume Call Answering (HVCA) system. This is an "always on" service which monitors all incoming calls to WaterLine and takes on the additional load during unexpected peaks.

The NI Water HVCA system recognises customers using the telephone number held on their customer record or it can use Voice Recognition to allow customers to speak their Post Code etc. (Voice Recognition like this is used on many smartphones and call handling systems in banks etc).

NI Water's customers should have a better experience when they ring us because their call will always be answered, and they should be provided with up to date information.

NI Water's management of the incident will be improved because we will know when, and why, each customer has called. This allows a more detailed picture of the reasons customers are calling and the potential causes to be built up. This technology puts NI Water on a par with other utilities in Northern Ireland and other water companies in Great Britain.

Major Incident and Major Emergency Website

NI Water's website routinely provides information to its customers regarding interruptions, repairs and planned upgrades as well as frequently asked questions and answers and links to helpful sites e.g. to find a plumber etc.

If a major incident or emergency is declared, NI Water's normal website has the facility to become a dedicated portal for emergency information. This allows customers to quickly find out information based on their postcode.

Information available includes:

- Bursts
- Alternative Water Supplies
- Planned Restrictions to Supply
- Low Reservoir Levels
- Boil Notices

The site support and throughput has been enhanced and allows in excess of 200,000 visits / hour by customers.



Social Media

NI Water is now actively using social media to interact with and inform its customers. This includes:



Facebook

This is updated on a daily basis and in the event of a major incident will be used to communicate directly with customers.

facebook.com/niwater



YouTube

NI Water has its own YouTube channel which hosts NI Water videos such as **“How to protect your pipes”**, **“Saving water in the home”** or **“Protect from Bogus Callers”**.

It can also be used to host video messages for customers during a major incident.

youtube.com/northernirelandwater



Twitter

NI Water's twitter account is routinely used to respond directly to customers queries at **@niwnews**.

Appendix 1

Drinking Water Quality Standards

Water Supply (Water Quality) Regulations (Northern Ireland) 2010

SCHEDULE 1 PRESCRIBED CONCENTRATIONS AND VALUES

**TABLE A.
MICROBIOLOGICAL PARAMETERS**

Part I: Directive requirements

Parameters	Concentration or Value (maximum)	Units of Measurement	Point of compliance
Enterococci	0	number/100ml	Customers' taps
Escherichia coli (E. coli)	0	number/100ml	Customers' taps
Coliform bacteria	0	number/100ml	Customers' taps (i)

**TABLE B.
CHEMICAL PARAMETERS**

Part I: Directive requirements

Parameters	Concentration or Value (maximum)	Units of Measurement	Point of compliance
Acrylamide	0.10	µg/l	(ii)
Antimony	5	µg Sb/l	Customers' taps
Arsenic	10	µg As/l	Customers' taps
Benzene	1	µg/l	Customers' taps
Benzo (a) pyrene	0.01	µg/l	Customers' taps
Boron	1	mg B/l	Customers' taps
Bromate	10	µg BrO ₃ /l	Customers' taps
Cadmium	5	µg Cd/l	Customers' taps
Chromium	50	µg Cr/l	Customers' taps
Copper	2	mg Cu/l	Customers' taps
Cyanide	50	µg CN/l	Customers' taps
1,2 Dichloroethane	3	µg/l	Customers' taps*
Fluoride	1.5	mg F/l	Customers' taps
Lead	(a) 25, from 25th December 2003 until immediately before 25th December 2013 (b) 10, on and after 25th December 2013	µg Pb/l µg Pb/l	Customers' taps Customers' taps
Mercury	1	µg Hg/l	Customers' taps
Nickel	20	µg Ni/l	Customers' taps

Parameters	Concentration or Value (maximum)	Units of Measurement	Point of compliance
Nitrate	50	mg NO ₃ /l	Customers' taps
Nitrite	0.5	mg NO ₂ /l	Customers' taps
Aldrin	0.03	µg/l	Customers' taps*
Dieldrin	0.03	µg/l	Customers' taps*
Heptachlor	0.03	µg/l	Customers' taps*
Heptachlor epoxide	0.03	µg/l	Customers' taps*
Other pesticides	0.1	µg/l	Customers' taps*
Total Pesticides (iii)	0.5	µg/l	Customers' taps*
PAH - Sum of four substances (iv)	0.1	µg/l	Customers' taps
Selenium	10	µg Se/l	Customers' taps
Tetrachloroethene/ Trichloroethene – Sum (v)	10	µg/l	Customers' taps*
Total Trihalomethanes (vi)	100	µg/l	Customers' taps
Vinyl chloride	0.50	µg/l	(ii)

Notes:

(i) NI Water, with the agreement of the Drinking Water Inspectorate, includes Total Coliforms within the Part I: Directive Requirements table for statistical purposes.

(ii) The parametric value refers to the residual monomer concentration in the water as calculated according to specifications of the maximum release from the corresponding polymer in contact with the water. This is controlled by product specification.

(iii) Total Pesticides: means the sum of the concentrations of the individual pesticides detected and quantified in the monitoring procedure.

(iv) The specified compounds are:

- benzo(b)fluoranthene
- benzo(k)fluoranthene
- benzo(ghi)perylene
- Indeno (1,2,3-cd) pyrene.

(v) The parametric value applies to the sum of the concentrations of the individual compounds detected and quantified in the monitoring process.

(vi) The specified compounds are:

- chloroform
- bromoform
- dibromochloromethane
- bromodichloromethane

* May be monitored from samples of water leaving treatment works or other supply point, as no significant change during distribution.

Part II: National requirements

Parameters	Concentration or Value (maximum unless otherwise stated)	Units of Measurement	Point of compliance
Aluminium	200	µg Al/l	Customers' taps
Colour	20	mg/l Pt/Co	Customers' taps
Iron	200	µg Fe/l	Customers' taps
Manganese	50	µg Mn/l	Customers' taps
Odour	Acceptable to consumers and no abnormal change	Dilution number	Customers' taps
Sodium	200	mg Na/l	Customers' taps
Taste	Acceptable to consumers and no abnormal change	Dilution number	Customers' taps
Tetrachloromethane	3	µg/l	Customers' taps
Turbidity	4	NTU	Customers' taps

SCHEDULE 2 INDICATOR PARAMETERS

Parameters	Specification Concentration or Value (maximum) or State	Units of Measurement	Point of monitoring
Ammonium	0.5	mg NH ₄ /l	Customers' taps
Chloride (i)	250	mg Cl/l	Supply point*
Clostridium perfringens (including spores)	0	Number/100ml	Supply point*
Colony counts	No abnormal change	Number/1 ml at 22°C Number/1 ml at 37°C	Customers' taps, service reservoirs and treatment works
Conductivity (i)	2500	µS/cm at 20°C	Supply point*
Hydrogen ion	9.5	pH value	Customers' taps
	6.5 (minimum)	pH value	
Sulphate (i)	250	mg SO ₄ /l	Supply point*
Total indicative dose (for radioactivity) (ii)	0.1	mSv/year	Supply point*
Total organic carbon (TOC)	No abnormal change	mg C/l	Supply point*
Tritium (for radioactivity)	100	Bq/l	Supply point*
Turbidity	1	NTU	Treatment works

Notes:

(i) The water should not be aggressive.

(ii) Excluding tritium, potassium-40,
radon and radon decay products.

* May be monitored from samples of water
leaving treatment works or other supply point,
as no significant change during distribution.

Explanatory Notes

Measurement Units:

milli gramme per litre (mg/l) means one part
in a million.

micro gramme per litre (µg/l) means one part
in a thousand million.

Parameter:

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

Appendix 2

Water Quality Report for Water Supply Zones

Schedule 1 parameters	2012 Samples	No > PCV	% > PCV
Enterococci	392	0	0.00%
E. coli	4704	6	0.13%
1,2 Dichloroethane	392	0	0.00%
Aluminium	1710	8	0.47%
Antimony	392	0	0.00%
Arsenic	392	0	0.00%
Benzene	392	0	0.00%
Benzo(a)pyrene	392	0	0.00%
Boron	392	0	0.00%
Bromate	392	1	0.26%
Cadmium	392	0	0.00%
Chromium	392	0	0.00%
Colour	1710	0	0.00%
Copper	392	0	0.00%
Iron	1710	47	2.75%
Lead	392	2	0.51%
Manganese	1710	3	0.18%
Mercury	392	0	0.00%
Nickel	392	0	0.00%
Nitrate	392	0	0.00%
Nitrite	392	0	0.00%
Odour	1711	3	0.18%
Selenium	392	0	0.00%
Sodium	392	0	0.00%
Taste	1710	2	0.12%
PAH - Sum of four substances	392	0	0.00%
Tetrachloroethene/ Trichloroethene - Sum	392	0	0.00%
Tetrachloromethane	392	0	0.00%
Total Trihalomethanes	392	10	2.55%
Turbidity	1710	6	0.35%

Indicator parameters	2012 Samples	No > SPEC	% > SPEC
Total coliforms	4704	59	1.25%
Total - Residual disinfectant	4704	0	0.00%
Free - Residual disinfectant	4704	0	0.00%
Colony Counts 37 (48hrs)	1712	0	0.00%
Colony Counts 22	1712	0	0.00%
Ammonium	1710	0	0.00%
Hydrogen Ion	1710	1	0.06%

Water Quality Report for Authorised Supply Points

Schedule 1 parameters	2012 Samples	No > PCV	% > PCV
Cyanide	231	0	0.00%
Fluoride	232	0	0.00%
Aldrin	230	0	0.00%
Dieldrin	230	0	0.00%
Heptachlor	230	0	0.00%
Heptachlor Epoxide	230	0	0.00%
Pesticides - Total Substances	231	1	0.43%
All other analysed Pesticides	8545	13	0.15%

Indicator parameters	2012 Samples	No > SPEC	% > SPEC
Clostridium perfringens (sulph red)	2731	7	0.26%
Chloride	232	0	0.00%
Conductivity	2731	0	0.00%
Sulphate	232	0	0.00%
Total Organic Carbon	232	0	0.00%
Total Indicative Dose	25	0	0.00%
Tritium	25	0	0.00%

Water Quality Report for Water Treatment Works

Schedule 1 parameters	2012 Samples	No > PCV	% > PCV
Total Coliforms	6617	3	0.05%
E. coli	6617	0	0.00%
Nitrite	232	0	0.00%

Indicator parameters	2012 Samples	No > SPEC	% > SPEC
Turbidity	6617	11	0.17%
Total - Residual disinfectant	6617	0	0.00%
Free - Residual disinfectant	6617	0	0.00%
Colony Counts 37 (48hrs)	6617	0	0.00%
Colony Counts 22	6617	0	0.00%

Water Quality Report for Service Reservoirs

Schedule 1 parameters	2012 Samples	No > PCV	% > PCV
Total Coliforms	16690	27	0.16%
E. coli	16690	7	0.04%

Indicator parameters	2012 Samples	No > SPEC	% > SPEC
Colony Counts 37 (48hrs)	16690	0	0.00%
Colony Counts 22	16690	0	0.00%
Total - Residual disinfectant	16690	0	0.00%
Free - Residual disinfectant	16690	0	0.00%

2012 Mean Zonal Compliance

Parameter	Number of Samples	No of fails at zone / supply point	No of zones / supply points with fails	% Zonal Compliance
Colour	1710	0	0	100.00
Turbidity	1710	6	5	99.70
Odour	1711	3	2	99.81
Taste	1710	2	1	99.89
Sodium	392	0	0	100.00
Nitrate	392	0	0	100.00
Nitrite	392	0	0	100.00
Nitrite/Nitrate Formula	392	0	0	100.00
Aluminium	1710	8	8	99.59
Iron	1710	47	25	97.36
Manganese	1710	3	2	99.83
Copper	392	0	0	100.00
Fluoride	232	0	0	100.00
Arsenic	392	0	0	100.00
Cadmium	392	0	0	100.00
Cyanide	231	0	0	100.00
Chromium	392	0	0	100.00
Mercury	392	0	0	100.00
Nickel	392	0	0	100.00
Lead	392	2	2	99.50
Antimony	392	0	0	100.00
Selenium	392	0	0	100.00
Total Pesticides	231	1	1	99.50
PAH - Sum of four substances	392	0	0	100.00
E. coli	4704	6	5	99.89
Enterococci	392	0	0	100.00
Boron	392	0	0	100.00
Benzo(a)pyrene	392	0	0	100.00
Tetrachloromethane	392	0	0	100.00
Tetrachloroethene/Trichloroethene - Sum	392	0	0	100.00
Total Trihalomethanes	392	10	6	97.50
1,2 Dichloroethane	392	0	0	100.00
Benzene	392	0	0	100.00
Bromate	392	1	1	99.75
Aldrin	230	0	0	100.00
Dieldrin	230	0	0	100.00
Heptachlor	230	0	0	100.00
Heptachlor epoxide	230	0	0	100.00
Pesticides - other substances (P999)*	8545	13	7	99.82
Total Number of Samples / Fails	35850	102		
Mean Zonal Compliance %				99.80

Appendix 3

Water Quality by Northern Ireland Local Council Area

This section of the Drinking Water Quality Report is designed to demonstrate water quality by individual council area based on the Mean Zonal Compliance (MZC) over the water supply zones associated with that council area, as shown on the associated maps.

For monitoring purposes NI Water's supply area is divided into water supply zones. These are areas serving not more than 100,000 people, each of which are normally supplied from a single water supply source or combination of sources. There are areas where owing to topography and dispersal of population, it is not practicable to provide a mains water supply. Currently over 99.6% of Northern Ireland's population receive public water supplies.

In a number of cases water supply zones overlap district council boundaries. The council reports indicate which water supply zones are wholly or partially contained within the council areas, including those zones which may have a relatively small area within the council area. Separation of data within these water supply zones across council boundaries is not practicable, therefore the information used in calculating the MZC relates to the whole zone and not merely the part included within a council boundary.

Following discussions with the Drinking Water Inspectorate, water supply zones with fewer than 40 properties within the council area have not been used to calculate the individual council MZC. The information is based on samples taken randomly from customers' taps in each water supply zone and from planned samples at authorised supply points. Due to the nature of random sampling, there may be fluctuations in water quality across the water supply zones.

The report also details Capital Work Programmes affecting the council area which directly related to water quality during the reporting period.

Small variations in water quality compliance performance occur across Northern Ireland. This reflects the need to continue to invest in and to maintain water treatment works, and to improve the water mains network.

NI Water has identified the need to deliver a significant volume of watermains rehabilitation and other works across its ageing network. The works are necessary to ensure the efficient and cost effective operation of its water supply system in the immediate future and longer term as well as ensuring adequate levels of water quality and customer supply.

To achieve this goal, NI Water has implemented a Watermains Rehabilitation Framework, within which it has appointed two contractors to undertake work on a Northern Ireland wide basis as identified by the zonal study programme of work.

Following the removal of some small water supply sources, NI Water reassessed its water supply zones for 2011. This led to the removal of some small zones along with the merging of other zones. As the MZC calculation is based on the number of zones in a particular council area, this has changed the factors used in the calculation and may lead to a perception of a change in water quality.

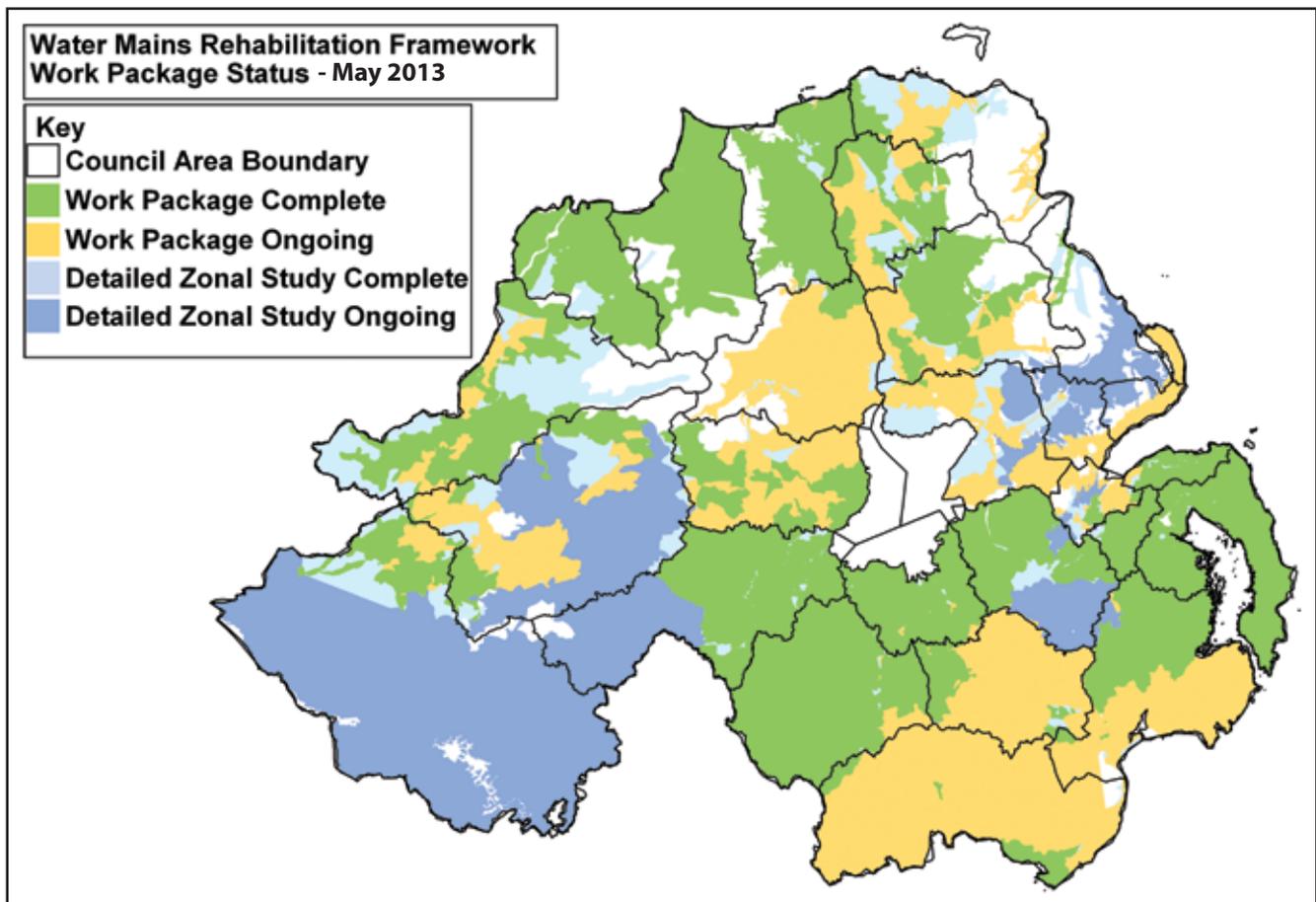
The DWI directed change in the analysis of taste and odour from 2010 has resulted in a number of exceedances which would not previously have failed. This has led in some cases to a small reduction in MZC at council level. This is not normally due to a change in the quality of water supplied, but rather to the change in the method of measurement.

Overall, the quality of water supplied to our customers over the last period has improved rising from a Mean Zonal Compliance of 99.50% in 2008 to 99.80% in 2012 measured against our Social and Economic Guidance target of 99.70%.

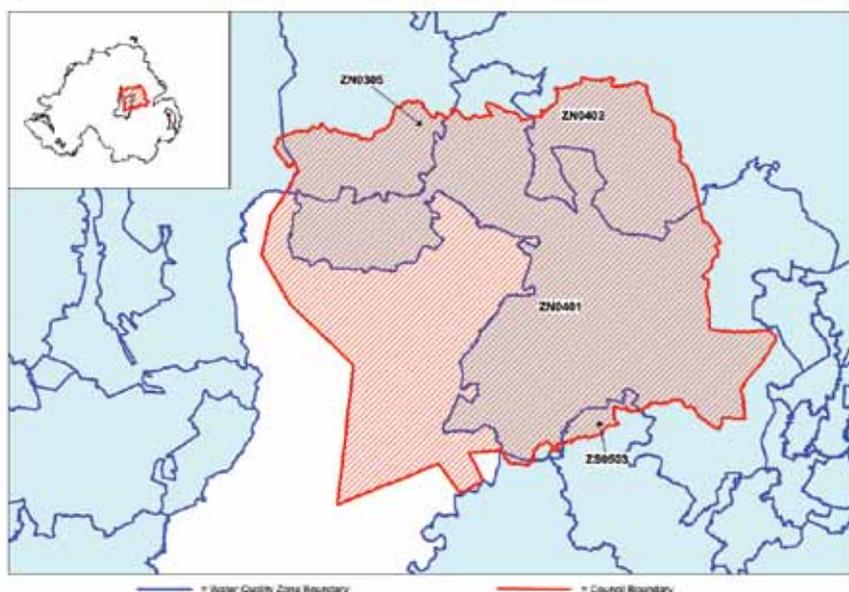
Watermains Rehabilitation Framework

Current Work Package Status

The map below shows the extent of the current Watermains Rehabilitation Framework covering most of Northern Ireland. To assist clarity, whilst the council boundaries are shown, the individual councils are not named. Regions in white on the map are largely upland areas or watercourses which do not receive public water supply.



Antrim Borough Council



Mean Zonal Compliance (MZC)

	2010	2011	2012
Overall Northern Ireland MZC	99.8%	99.8%	99.8%
Antrim Council MZC	99.8%	99.9%	99.9%

2012 water supply zones wholly or partially within the council area:

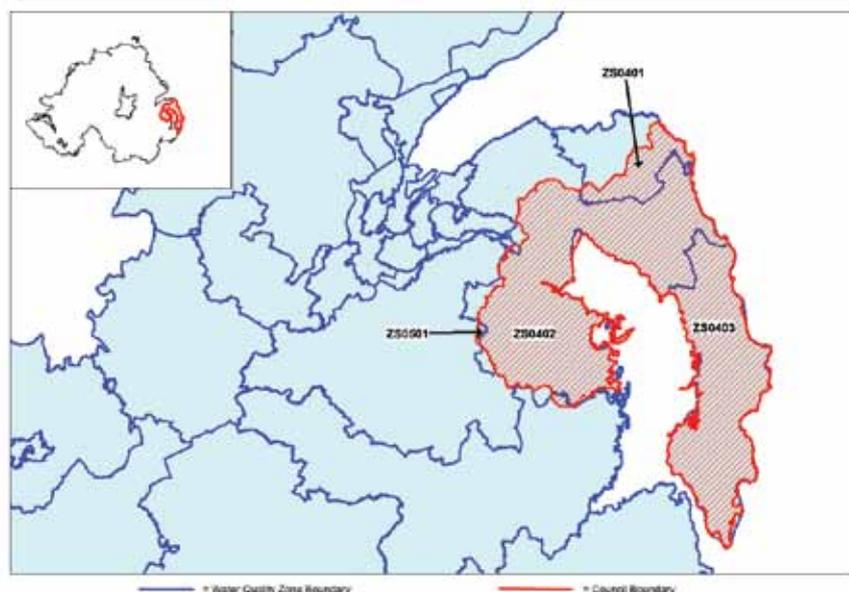
Zone Code	Zone Name	Zone Code	Zone Name
ZN0305	Dungonnell Ahoghill	ZN0402	Killylane Ballynure
ZN0401	Dunore Point Antrim	ZS0503	Forked Bridge Stoneyford

2012 water quality Capital Works Programmes affecting the council area:

High Priority Watermains Phase 2 Work Package
 Killylane Dunore East Phase 1
 Major Incident Mitigation Project Central Region Freeze Thaw Improvements
 Major Incident Mitigation Project East Region Freeze Thaw Improvements
 Service Reservoir Enhanced Security Phase 2
 Tardree Zone Watermain Improvements
 Water Mains Rehabilitation, New and Replacement
 WTW Effluent Quality

The ongoing Watermains Rehabilitation Framework will continue to maintain and improve the quality of water in the Antrim council area over the next few years.

Ards Borough Council



Mean Zonal Compliance (MZC)

	2010	2011	2012
Overall Northern Ireland MZC	99.8%	99.8%	99.8%
Ards Council MZC	99.9%	99.9%	99.9%

2012 water supply zones wholly or partially within the council area:

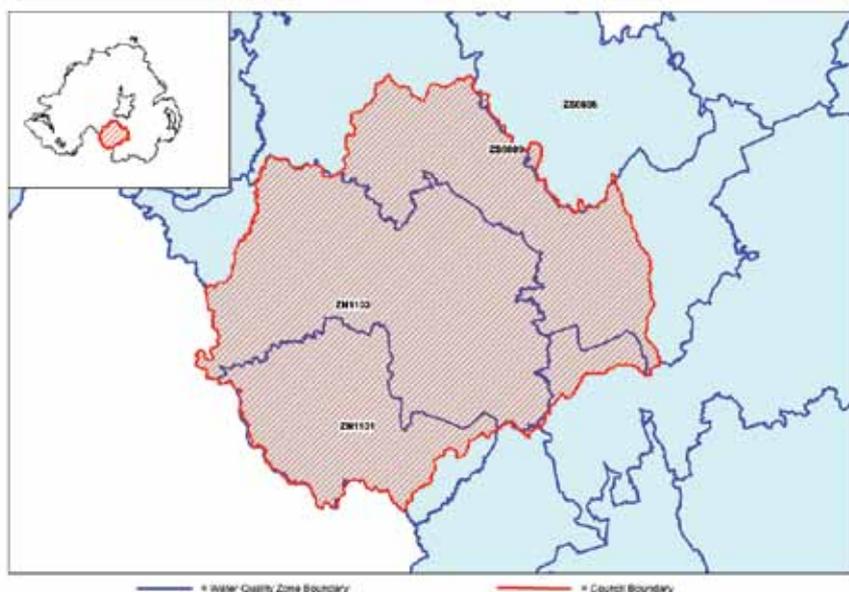
Zone Code	Zone Name	Zone Code	Zone Name
ZS0401	Drummaroad Bangor	ZS0403	Drummaroad Peninsula
ZS0402	Drummaroad Comber	ZS0501	Drummaroad Lisburn

2012 water quality Capital Works Programmes affecting the council area:

Ballygowan Zone Watermain Improvements
 High Priority Watermains Phase 2 Work Package
 Lough Cowey Zone Watermain Improvements
 Major Incident Mitigation Project East Region Freeze Thaw Improvements
 North Down Strategic Trunk Watermains
 Service Reservoir Enhanced Security Phase 2
 Water Mains Rehabilitation, New and Replacement
 WTW Effluent Quality

The ongoing Watermains Rehabilitation Framework will continue to maintain and improve the quality of water in Ards council area over the next few years.

Armagh City & District Council



Mean Zonal Compliance (MZC)

	2010	2011	2012
Overall Northern Ireland MZC	99.8%	99.8%	99.8%
Armagh City & Council MZC	99.9%	99.9%	99.9%

2012 water supply zones wholly or partially within the council area:

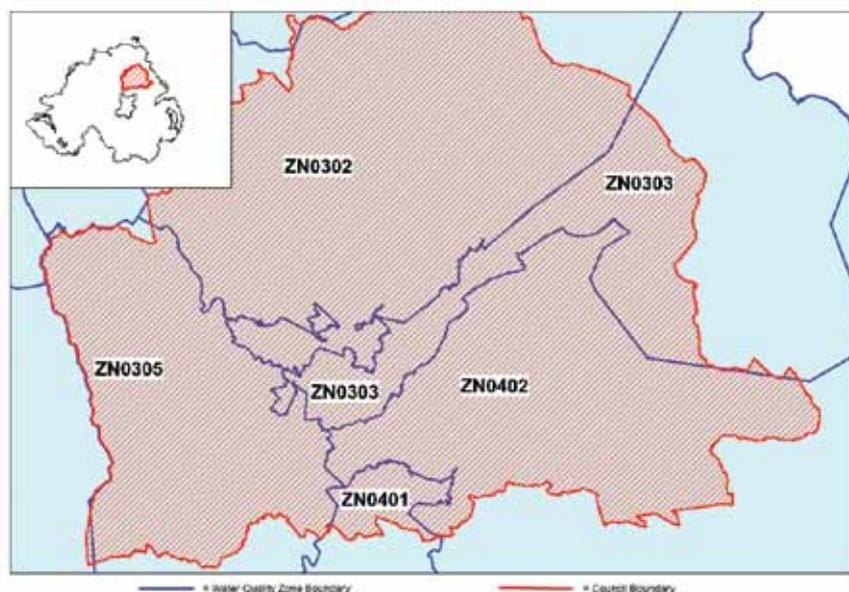
Zone Code	Zone Name	Zone Code	Zone Name
ZN1101	Clay Lake Keady	ZS0808	Castor Bay Craigavon
ZN1102	Seagahan Armagh	ZS0809	Castor Bay Dungannon

2012 water quality Capital Works Programmes affecting the council area:

High Priority Watermains Phase 2 Work Package
 Major Incident Mitigation Project South Region Freeze Thaw Improvements
 Seagahan Zone Watermain Improvements
 Service Reservoir Enhanced Security Phase 2
 Water Mains Rehabilitation, New and Replacement
 WP134 High Priority Water Mains Phase 1
 WTW Effluent Quality

The ongoing Watermains Rehabilitation Framework will continue to maintain and improve the quality of water in the Armagh council area over the next few years.

Ballymena Borough Council



Mean Zonal Compliance (MZC)

	2010	2011	2012
Overall Northern Ireland MZC	99.8%	99.8%	99.8%
Ballymena Council MZC	99.7%	99.9%	99.9%

2012 water supply zones wholly or partially within the council area:

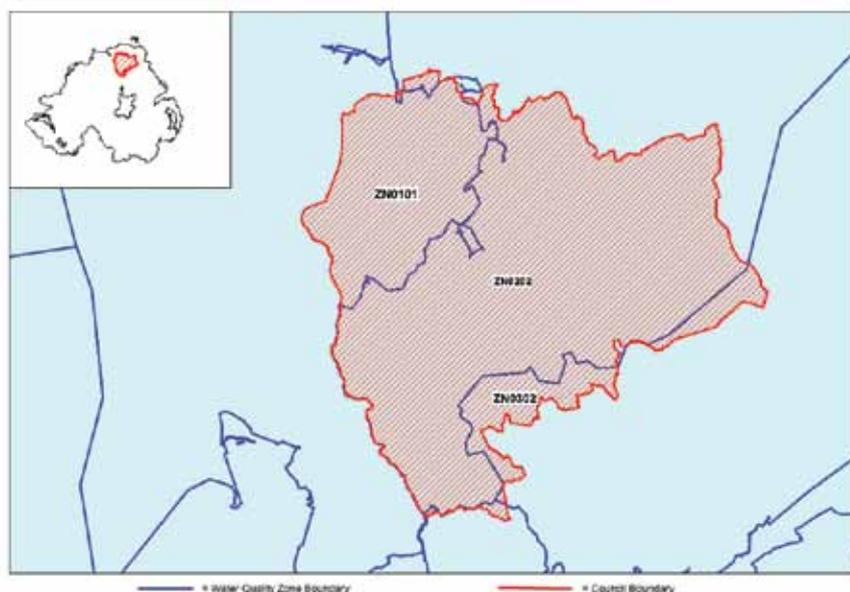
Zone Code	Zone Name	Zone Code	Zone Name
ZN0302	Dungonnell Glarryford	ZN0401	Dunore Point Antrim
ZN0303	Dunore Point Ballymena	ZN0402	Killylane Ballynure
ZN0305	Dungonnell Ahoghill		

2012 water quality Capital Works Programmes affecting the council area:

Dungonnell Command Service Reservoir
 Dungonnell Zone Watermain Improvements
 Garstings Hill SR, Ballymena, Water Pumping station
 Glenlough SR, Ballymoney, New SR
 High Priority Watermains Phase 2 Work Package
 Major Incident Mitigation Project Central Region Freeze Thaw Improvements
 Major Incident Mitigation Project North Region Freeze Thaw Improvements
 Service Reservoir Enhanced Security Phase 2
 Tardree Zone Watermain Improvements
 Tully Service Reservoir
 Water Mains Rehabilitation, New and Replacement
 WTW Effluent Quality

The ongoing Watermains Rehabilitation Framework will continue to maintain and improve the quality of water in the Ballymena council area over the next few years.

Ballymoney Borough Council



Mean Zonal Compliance (MZC)

	2010	2011	2012
Overall Northern Ireland MZC	99.8%	99.8%	99.8%
Ballymoney Council MZC	99.4%	99.9%	99.9%

2012 water supply zones wholly or partially within the council area:

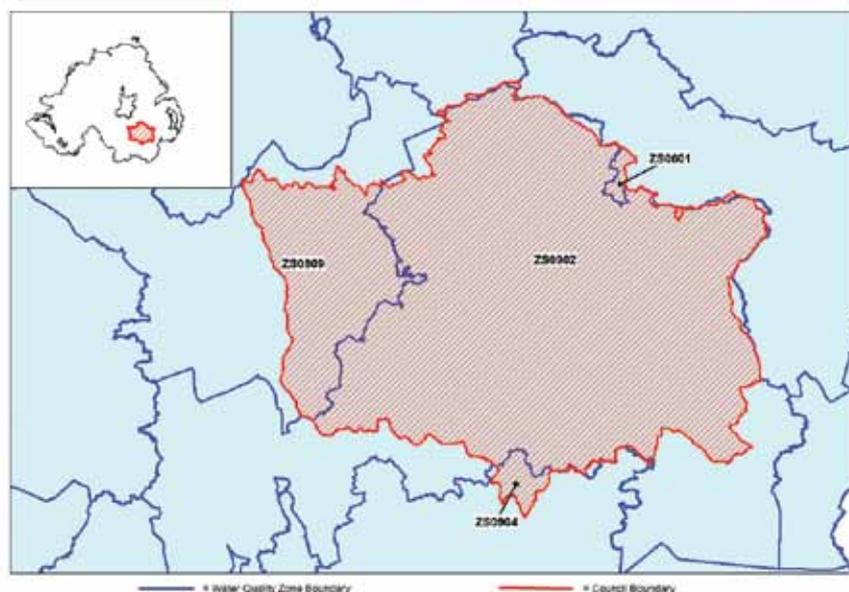
Zone Code	Zone Name	Zone Code	Zone Name
ZN0101	Ballinrees Coleraine	ZN0302	Dungonnell Glarryford
ZN0202	Altnahinch Bushmills		

2012 water quality Capital Works Programmes affecting the council area:

Glenlough SR, Ballymoney, New SR
 High Priority Watermains Phase 2 Work Package
 Major Incident Mitigation Project North Region Freeze Thaw Improvements
 Service Reservoir Enhanced Security Phase 2
 Water Mains Rehabilitation, New and Replacement
 WTW Effluent Quality

The ongoing Watermains Rehabilitation Framework will continue to maintain and improve the quality of water in the Ballymoney council area over the next few years.

Banbridge District Council



Mean Zonal Compliance (MZC)

	2010	2011	2012
Overall Northern Ireland MZC	99.8%	99.8%	99.8%
Banbridge Council MZC	99.8%	99.9%	99.9%

2012 water supply zones wholly or partially within the council area:

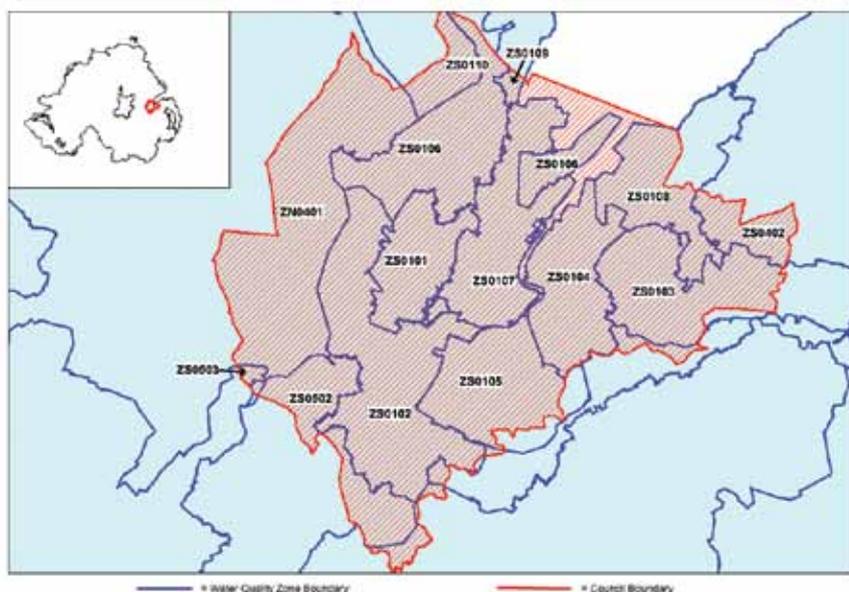
Zone Code	Zone Name	Zone Code	Zone Name
ZS0601	Drumaroad Ballynahinch	ZS0902	Fofanny Dromore
ZS0808	Castor Bay Craigavon	ZS0904	Fofanny Mourne
ZS0809	Castor Bay Dungannon		

2012 water quality Capital Works Programmes affecting the council area:

Ballydougan to Newry Main Link Reinforcement
 Banbridge Drainage Area Improvements
 High Priority Watermains Phase 2 Work Package
 Major Incident Mitigation Project South Region Freeze Thaw Improvements
 Park Road, Dromara, Watermain Extension
 Service Reservoir Enhanced Security Phase 2
 Water Mains Rehabilitation, New and Replacement
 WTW Effluent Quality

The ongoing Watermains Rehabilitation Framework will continue to maintain and improve the quality of water in the Banbridge council area over the next few years.

Belfast City Council



Mean Zonal Compliance (MZC)

	2010	2011	2012
Overall Northern Ireland MZC	99.8%	99.8%	99.8%
Belfast City Council MZC	99.9%	99.9%	99.9%

2012 water supply zones wholly or partially within the council area:

Zone Code	Zone Name	Zone Code	Zone Name
ZN0401	Dunore Point Antrim	ZS0107	Belfast Oldpark
ZS0101	Dunore Ballygomartin North	ZS0108	Belfast Purdysburn
ZS0102	Dunore Ballygomartin South	ZS0109	Dorisland Whiteabbey
ZS0103	Belfast Ballyhanwood	ZS0110	Dunore Point Glengormley
ZS0104	Dunore Breda North	ZS0402	Drumaroad Comber
ZS0105	Dunore Breda South	ZS0502	Forked Bridge Dunmurry
ZS0106	Dunore Belfast North	ZS0503	Forked Bridge Stoneyford

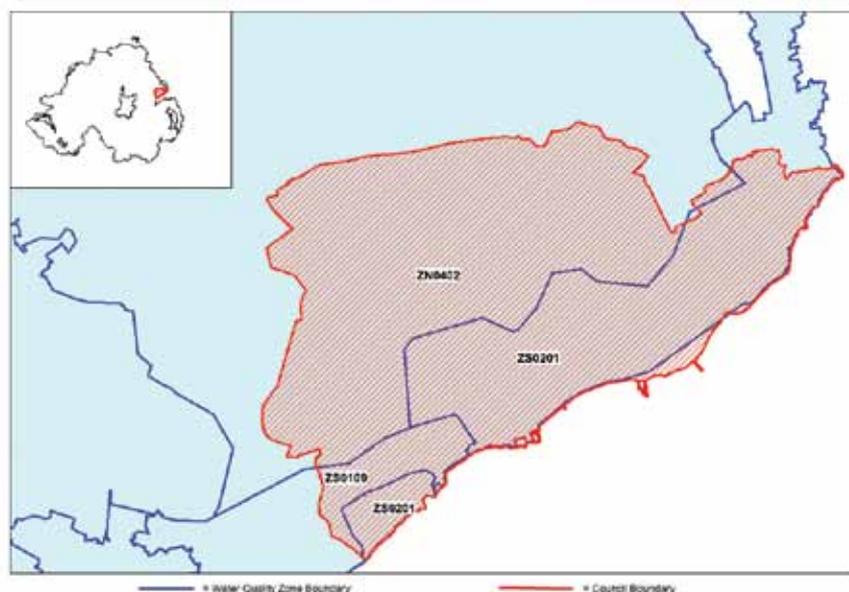
2012 water quality Capital Works Programmes affecting the council area:

Ballygomartin North Phase 1 Watermain Improvements
 Ballygomartin South Phase 1 Water Mains Improvements
 Ballysillan Zone Watermain Improvements
 Ballywonard Zone Watermain Improvements
 Breda North Zone Watermain Improvements
 CTM Extension - Barnetts Park to Purdysburn
 High Priority Watermains Phase 2 Work Package

Major Incident Mitigation Project East Region Freeze Thaw Improvements
 McVeigh's Well Rationalisation of Pipework
 Service Reservoir Enhanced Security Phase 2
 Water Mains Rehabilitation, New and Replacement
 WTW Effluent Quality

The ongoing Watermains Rehabilitation Framework will continue to maintain and improve the quality of water in the Belfast City council area over the next few years.

Carrickfergus Borough Council



Mean Zonal Compliance (MZC)

	2010	2011	2012
Overall Northern Ireland MZC	99.8%	99.8%	99.8%
Carrickfergus Council MZC	99.8%	99.8%	99.7%

2012 water supply zones wholly or partially within the council area:

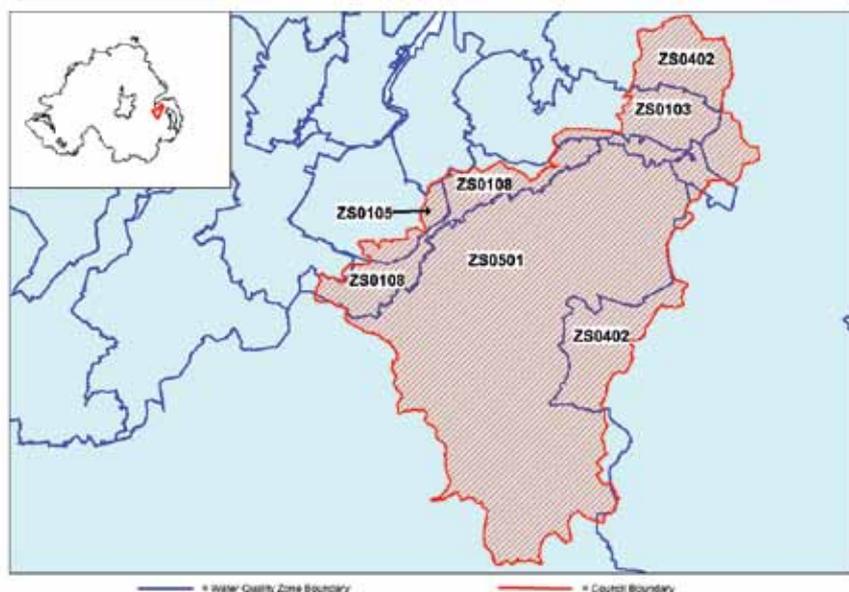
Zone Code	Zone Name	Zone Code	Zone Name
ZN0402	Killylane Ballynure	ZS0201	Dorisland Carrick
ZS0109	Dorisland Whiteabbey		

2012 water quality Capital Works Programmes affecting the council area:

Carrickfergus Zone Watermain Improvements Phase 1
 Carrickfergus Zone Watermain Improvements Phase 2
 Enhanced Site Security
 High Priority Watermains Phase 2 Work Package
 Major Incident Mitigation Project East Region Freeze Thaw Improvements
 Service Reservoir Enhanced Security Phase 2
 Tardree Zone Watermain Improvements
 Water Mains Rehabilitation, New and Replacement
 WTW Effluent Quality

Deterioration in the raw water abstracted by Dorisland WTW during 2011 and 2012 led to a small reduction in the overall water quality at customer tap. This works has now been targeted with an upgrade to its treatment processes. This in conjunction with the ongoing Watermains Rehabilitation Framework will continue to maintain and improve the quality of water in the Carrickfergus council area over the next few years.

Castlereagh Borough Council



Mean Zonal Compliance (MZC)

	2010	2011	2012
Overall Northern Ireland MZC	99.8%	99.8%	99.8%
Castlereagh Council MZC	99.8%	99.8%	99.9%

2012 water supply zones wholly or partially within the council area:

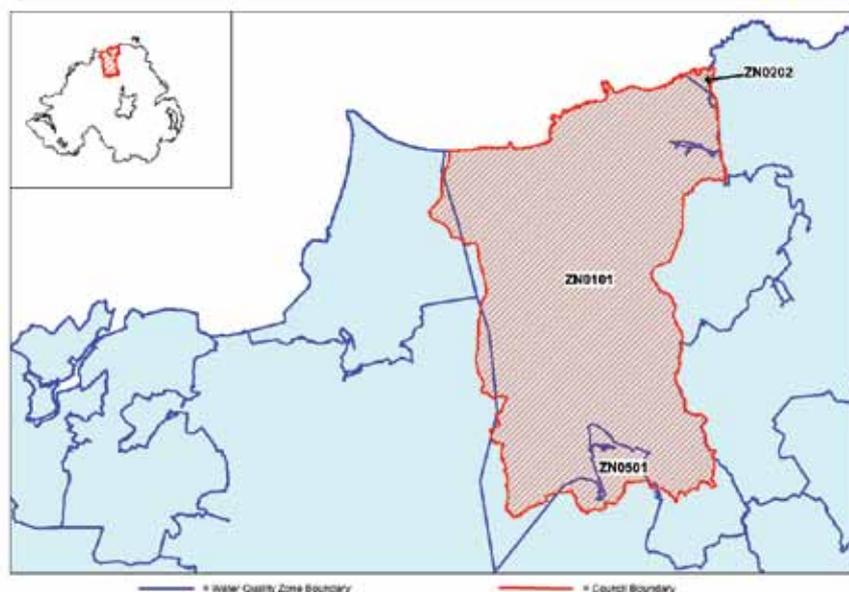
Zone Code	Zone Name	Zone Code	Zone Name
ZS0103	Belfast Ballyhanwood	ZS0108	Belfast Purdysburn
ZS0104	Dunore Breda North	ZS0402	Drumaroad Comber
ZS0105	Dunore Breda South	ZS0501	Drumaroad Lisburn

2012 water quality Capital Works Programmes affecting the council area:

CTM Extension - Barnetts Park to Purdysburn
 High Priority Watermains Phase 2 Work Package
 Major Incident Mitigation Project East Region Freeze Thaw Improvements
 North Down Strategic Trunk Watermains
 Queensfort Road Watermain Upgrade
 Service Reservoir Enhanced Security Phase 2
 Water Mains Rehabilitation, New and Replacement
 WTW Effluent Quality

The ongoing Watermains Rehabilitation Framework will continue to maintain and improve the quality of water in the Castlereagh council area over the next few years.

Coleraine Borough Council



Mean Zonal Compliance (MZC)

	2010	2011	2012
Overall Northern Ireland MZC	99.8%	99.8%	99.8%
Coleraine Council MZC	99.7%	99.9%	99.9%

2012 water supply zones wholly or partially within the council area:

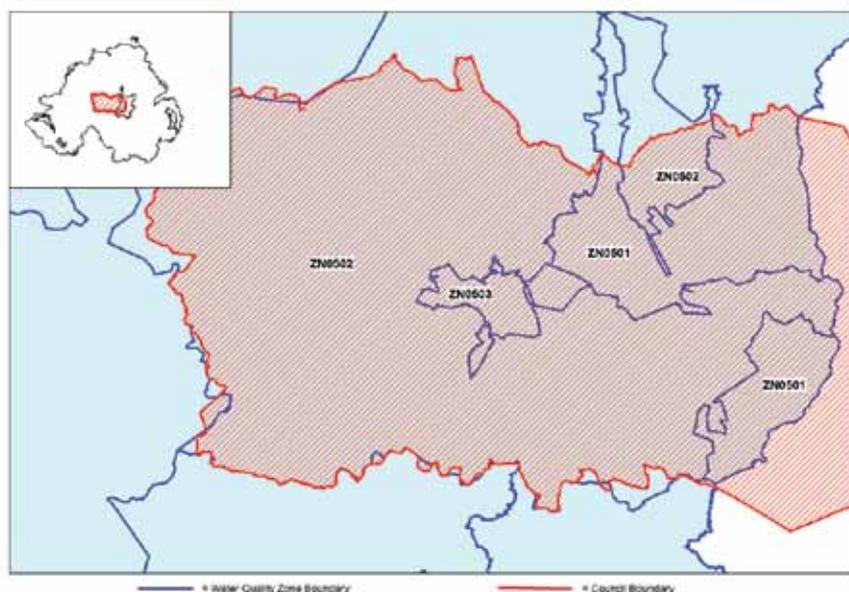
Zone Code	Zone Name	Zone Code	Zone Name
ZN0101	Ballinrees Coleraine	ZN0501	Moyola Magherafelt
ZN0202	Altnahinch Bushmills		

2012 water quality Capital Works Programmes affecting the council area:

Ballinrees Central Zone Watermain Improvements
 High Priority Watermains Phase 2 Work Package
 Major Incident Mitigation Project North Region Freeze Thaw Improvements
 Rasharkin Zone Watermain Improvements Phase 2
 Service Reservoir Enhanced Security Phase 2
 Water Mains Rehabilitation, New and Replacement
 WTW Effluent Quality

The ongoing Watermains Rehabilitation Framework and further treatment optimisation of Ballinrees WTW will continue to maintain and improve the quality of water in the Coleraine council area over the next few years.

Cookstown District Council



Mean Zonal Compliance (MZC)

	2010	2011	2012
Overall Northern Ireland MZC	99.8%	99.8%	99.8%
Cookstown Council MZC	99.9%	99.9%	99.9%

2012 water supply zones wholly or partially within the council area:

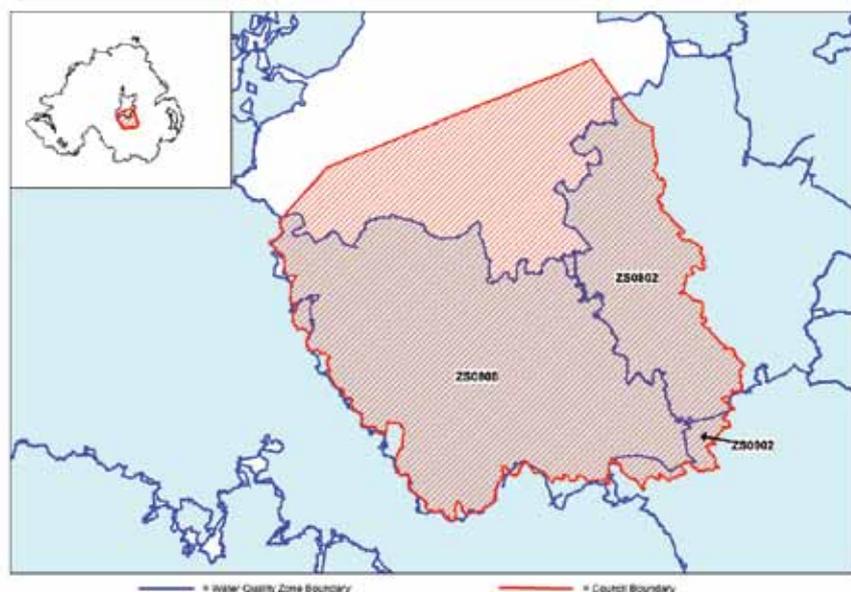
Zone Code	Zone Name	Zone Code	Zone Name
ZN0501	Moyola Magherafelt	ZN0503	Unagh Cookstown
ZN0502	Lough Fea Cookstown		

2012 water quality Capital Works Programmes affecting the council area:

Altmore Phase 2 Watermain Rehabilitation
 Cookstown Phase 2 Watermain Improvements
 Cookstown Phase 3 Watermain Improvements
 High Priority Watermains Phase 2 Work Package
 Major Incident Mitigation Project Central Region Freeze Thaw Improvements
 Service Reservoir Enhanced Security Phase 2
 Water Mains Rehabilitation, New and Replacement
 WTW Effluent Quality

The ongoing Watermains Rehabilitation Framework will continue to maintain and improve the quality of water in Cookstown council area over the next few years.

Craigavon Borough Council



Mean Zonal Compliance (MZC)

	2010	2011	2012
Overall Northern Ireland MZC	99.8%	99.8%	99.8%
Craigavon Council MZC	99.9%	99.8%	99.9%

2012 water supply zones wholly or partially within the council area:

Zone Code	Zone Name	Zone Code	Zone Name
ZS0802	Castor Bay Lurgan	ZS0808	Castor Bay Craigavon
ZS0808	Castor Bay Craigavon	ZS0902	Fofanny Dromore

2012 water quality Capital Works Programmes affecting the council area:

Ballydougan to Newry Main Link Reinforcement
 Cornakinnegar Road, Lurgan Water Main Extension
 High Priority Watermains Phase 2 Work Package
 Major Incident Mitigation Project South Region Freeze Thaw Improvements
 Portadown Drainage Area Network Improvements - Obins Street and Park Road
 Service Reservoir Enhanced Security Phase 2
 Tardree Zone Watermain Improvements
 Water Mains Rehabilitation, New and Replacement
 WTW Effluent Quality

The ongoing Watermains Rehabilitation Framework will continue to maintain and improve the quality of water in the Craigavon council area over the next few years.

Derry City Council



Mean Zonal Compliance (MZC)

	2010	2011	2012
Overall Northern Ireland MZC	99.8%	99.8%	99.8%
Derry City Council MZC	99.9%	99.6%	99.4%

2012 water supply zones wholly or partially within the council area:

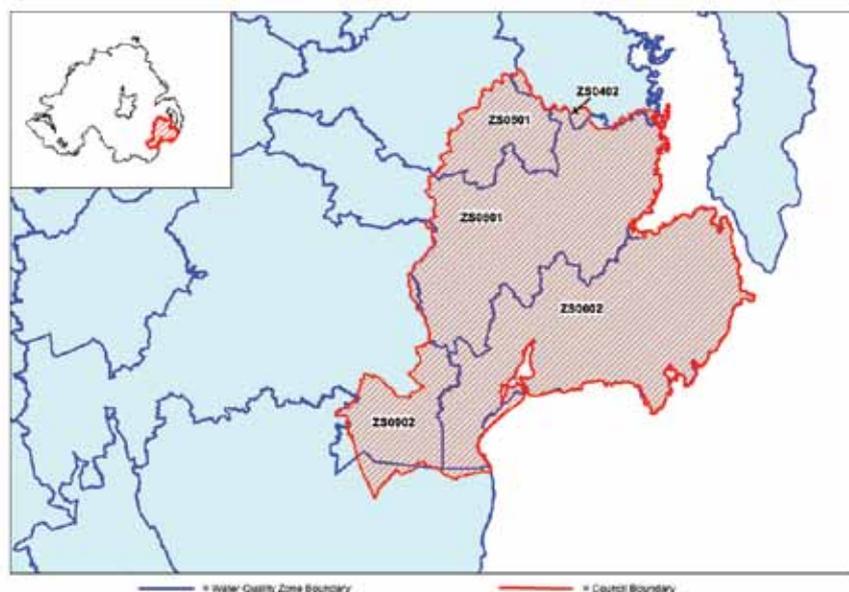
Zone Code	Zone Name	Zone Code	Zone Name
ZN0603	Carmony Eglinton	ZN0605	Creggan Derry
ZN0604	Caugh Hill Dungiven		

2012 water quality Capital Works Programmes affecting the council area:

- Ballinrees to Limavady/Londonderry Supply Augmentation
- Carmony to Strabane Strategic Link Watermain
- Carmony Water Treatment Works Upgrade
- Enhanced Site Security
- High Priority Watermains Phase 2 Work Package
- Londonderry DAP: Duke Street Work package
- Major Incident Mitigation Project North Region Freeze Thaw Improvements
- Service Reservoir Enhanced Security Phase 2
- Water Mains Rehabilitation, New and Replacement
- WTW Effluent Quality

With only 3 water supply zones used for Derry City Council's compliance assessment, deterioration in a single zone has a large perceived effect on the water quality calculation. During 2012 there were a number of failures associated with Caugh Hill WTW whilst a planned upgrade to the coagulation was slightly delayed. Upgrade work of the coagulation at the WTW has now been completed and this has had an immediate improvement in the quality of water supplied to the council area. This upgrade as well as the recent upgrade at Carmony WTW combined with the Watermains Rehabilitation Framework work packages will continue to maintain and improve the quality of water in the Derry council area over the next few years.

Down District Council



Mean Zonal Compliance (MZC)

	2010	2011	2012
Overall Northern Ireland MZC	99.8%	99.8%	99.8%
Down Council MZC	99.8%	99.7%	99.9%

2012 water supply zones wholly or partially within the council area:

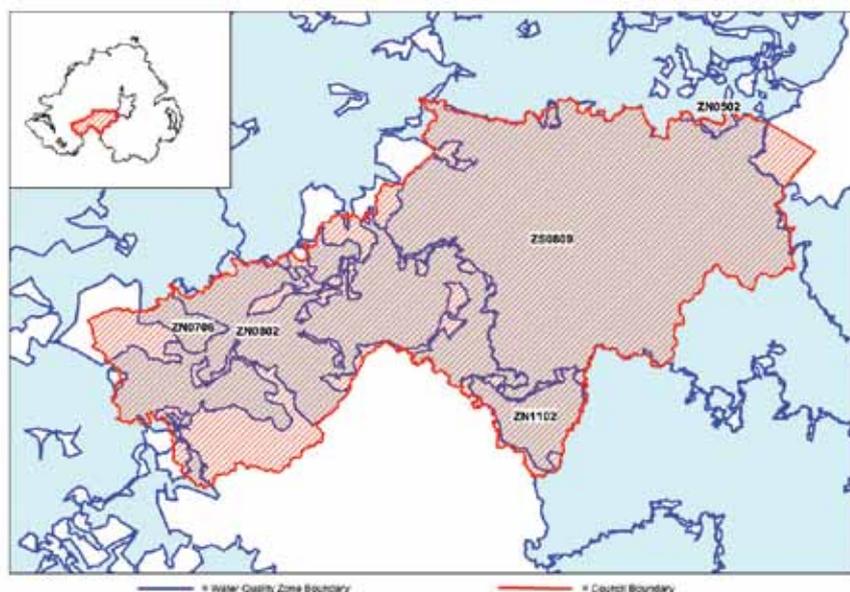
Zone Code	Zone Name	Zone Code	Zone Name
ZS0402	Drummaroad Comber	ZS0602	Drummaroad Downpatrick
ZS0501	Drummaroad Lisburn	ZS0902	Fofanny Dromore
ZS0601	Drummaroad Ballynahinch		

2012 water quality Capital Works Programmes affecting the council area:

Ballykine Gravity Distribution
 Bloody Bridge Water Pumping Station & New Link Main for Major Incident Mitigation
 Downpatrick Zone Watermain Improvements
 Enhanced Site Security
 High Priority Watermains Phase 2 Work Package
 Major Incident Mitigation Project East Region Freeze Thaw Improvements
 Mid Down Zone Watermain Improvements
 North Down Strategic Trunk Watermains
 Service Reservoir Enhanced Security Phase 2
 South Down Zone Watermain Improvements
 Water Mains Rehabilitation, New and Replacement
 WTW Effluent Quality

The ongoing Watermains Rehabilitation Framework will continue to maintain and improve the quality of water in the Down council area over the next few years.

Dungannon and South Tyrone Borough Council



Mean Zonal Compliance (MZC)

	2010	2011	2012
Overall Northern Ireland MZC	99.8%	99.8%	99.8%
Dungannon and South Tyrone Council MZC	99.7%	99.9%	99.8%

2012 water supply zones wholly or partially within the council area:

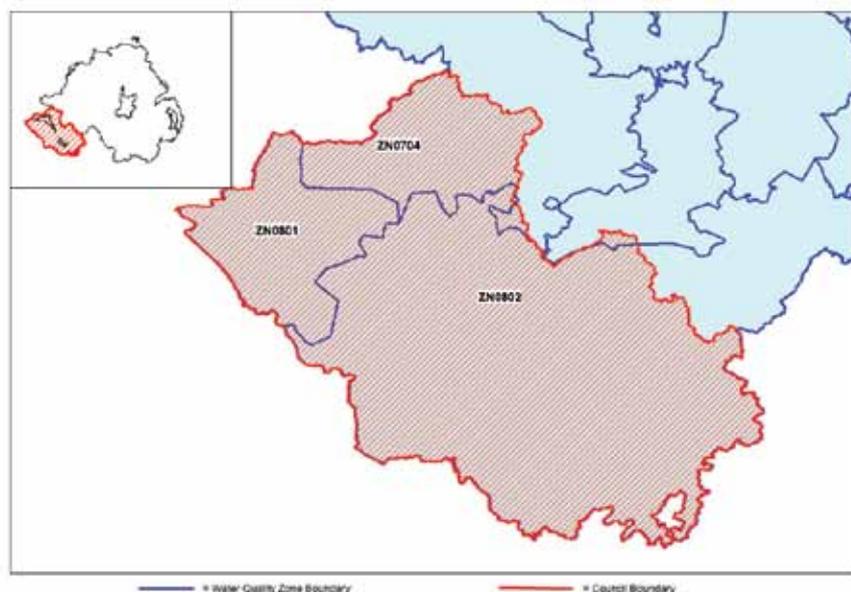
Zone Code	Zone Name	Zone Code	Zone Name
ZN0502	Lough Fea Cookstown	ZN1102	Seaghan Armagh
ZN0706	Lough Macrory Killyclogher	ZS0809	Castor Bay Dungannon
ZN0802	Killyhevlin Enniskillen		

2012 water quality Capital Works Programmes affecting the council area:

Altmore Phase 2 Watermain Rehabilitation
 Carland Service Reservoir
 Foy Lane Wm. Ext. Fivemiletown
 Glencuil to Cabragh Strategic Link Watermain
 High Priority Watermains Phase 2 Work Package
 Major Incident Mitigation Project South Region Freeze Thaw Improvements
 Major Incident Mitigation Project West Region Freeze Thaw Improvements
 Service Reservoir Enhanced Security Phase 2
 Water Mains Rehabilitation, New and Replacement
 WTW Effluent Quality

As can be seen from the Watermains Rehabilitation Framework map at the start of this section, much of the Dungannon and South Tyrone council area has targeted work packages in place to improve the quality of water at customer tap. This ongoing work will continue to maintain and improve the quality of water in the council area over the next few years.

Fermanagh District Council



Mean Zonal Compliance (MZC)

	2010	2011	2012
Overall Northern Ireland MZC	99.8%	99.8%	99.8%
Fermanagh Council MZC	99.6%	99.8%	99.8%

2012 water supply zones wholly or partially within the council area:

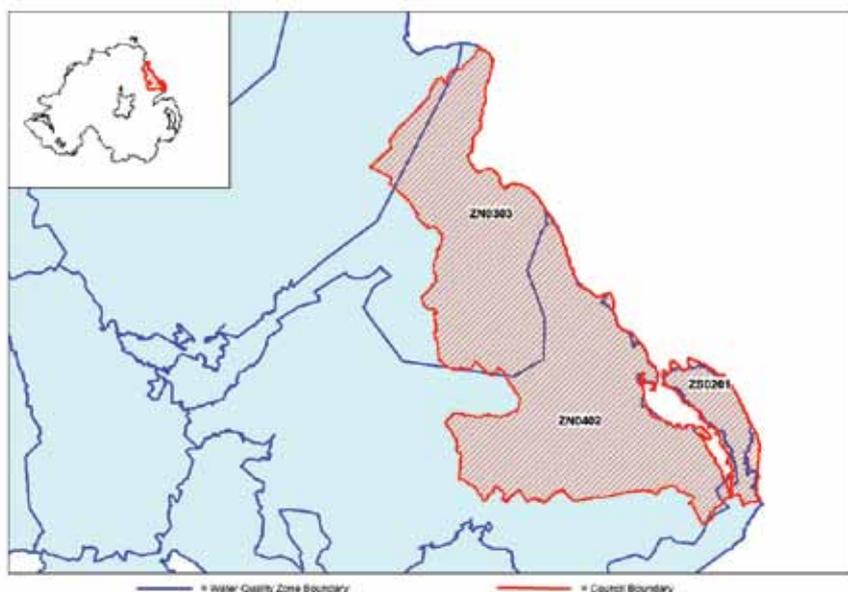
Zone Code	Zone Name	Zone Code	Zone Name
ZN0704	Lough Bradan Drumquin	ZN0802	Killyhevlin Enniskillen
ZN0801	Belleek Garrison		

2012 water quality Capital Works Programmes affecting the council area:

Alleyhill Zone Watermain Improvements
 Corradillar, Lisnaskea Watermain Extension
 Enniskillen New Hospital Watermain Extension
 High Priority Watermains Phase 2 Work Package
 Killyhevlin to Lough Bradan Link Watermain
 Major Incident Mitigation Project West Region Freeze Thaw Improvements
 Service Reservoir Enhanced Security Phase 2
 Water Mains Rehabilitation, New and Replacement
 WTW Effluent Quality

As can be seen from the Watermains Rehabilitation Framework map at the start of this section, much of the Fermanagh council area has targeted work packages in place to improve the quality of water at customer tap. This ongoing work will continue to maintain and improve the quality of water in the council area over the next few years.

Larne Borough Council



Mean Zonal Compliance (MZC)

	2010	2011	2012
Overall Northern Ireland MZC	99.8%	99.8%	99.8%
Larne Council MZC	99.7%	99.8%	99.8%

2012 water supply zones wholly or partially within the council area:

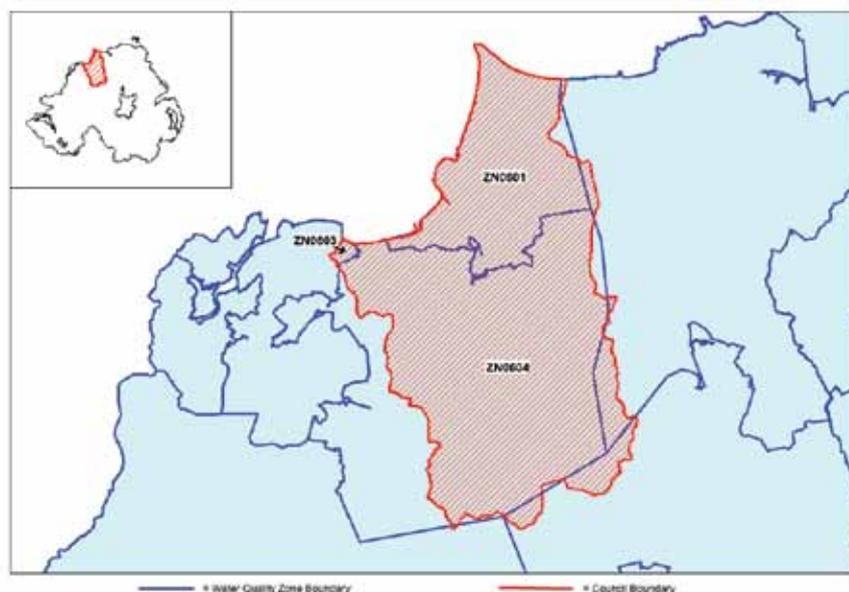
Zone Code	Zone Name	Zone Code	Zone Name
ZN0303	Dunore Point Ballymena	ZS0201	Dorisland Carrick
ZN0402	Killylane Ballynure		

2012 water quality Capital Works Programmes affecting the council area:

High Priority Watermains Phase 2 Work Package
 Killylane Dunore East Phase 1
 Major Incident Mitigation Project Central Region Freeze Thaw Improvements
 Major Incident Mitigation Project East Region Freeze Thaw Improvements
 Service Reservoir Enhanced Security Phase 2
 Water Mains Rehabilitation, New and Replacement
 WTW Effluent Quality

As can be seen from the Watermains Rehabilitation Framework map at the start of this section, much of the Larne council area has targeted work packages in place to improve the quality of water at customer tap. This ongoing work will continue to maintain and improve the quality of water in the council area over the next few years.

Limavady Borough Council



Mean Zonal Compliance (MZC)

	2010	2011	2012
Overall Northern Ireland MZC	99.8%	99.8%	99.8%
Limavady Council MZC	99.9%	99.7%	99.5%

2012 water supply zones wholly or partially within the council area:

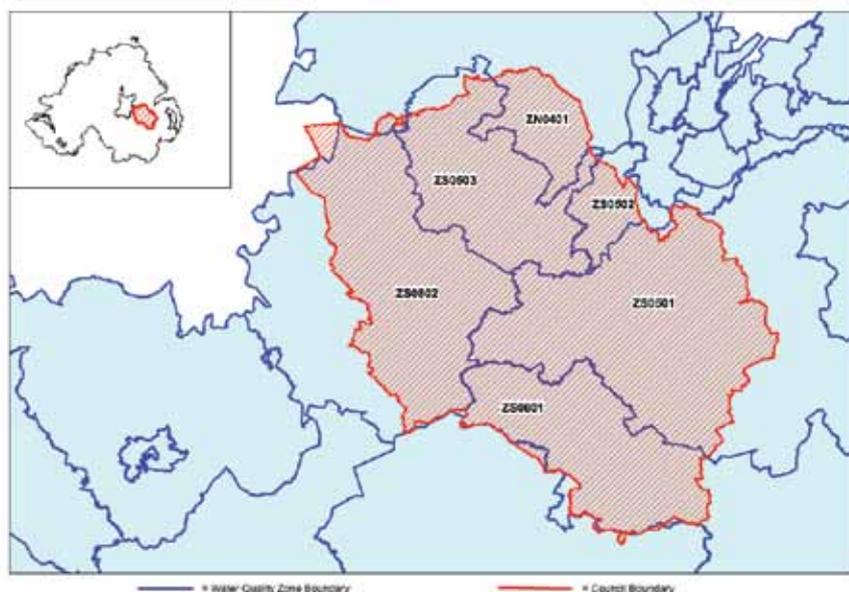
Zone Code	Zone Name	Zone Code	Zone Name
ZN0601	Ballinrees Limavady	ZN0604	Caugh Hill Dungiven
ZN0603	Carmoney Eglinton		

2012 water quality Capital Works Programmes affecting the council area:

Ballinrees to Limavady/Londonderry Supply Augmentation
 Drumrane Road Limavady Watermain Extension (First Time Supply)
 High Priority Watermains Phase 2 Work Package
 Major Incident Mitigation Project North Region Freeze Thaw Improvements
 Service Reservoir Enhanced Security Phase 2
 Water Mains Rehabilitation, New and Replacement
 WP134 High Priority Water Mains Phase 1
 WTW Effluent Quality

With only 3 water supply zones used for Limavady Borough Council's compliance assessment, deterioration in a single zone has a large perceived effect on the water quality calculation. During 2012 there were a number of failures associated with Caugh Hill WTW whilst a planned upgrade to the coagulation was slightly delayed. Upgrade work of the coagulation at the WTW has now been completed and this has had an immediate improvement in the quality of water supplied to the council area. This upgrade as well as the recent upgrade at Carmoney WTW combined with the Watermains Rehabilitation Framework work packages will continue to maintain and improve the quality of water in the Limavady council area over the next few years.

Lisburn City Council



Mean Zonal Compliance (MZC)

	2010	2011	2012
Overall Northern Ireland MZC	99.8%	99.8%	99.8%
Lisburn City Council MZC	99.9%	99.7%	99.8%

2012 water supply zones wholly or partially within the council area:

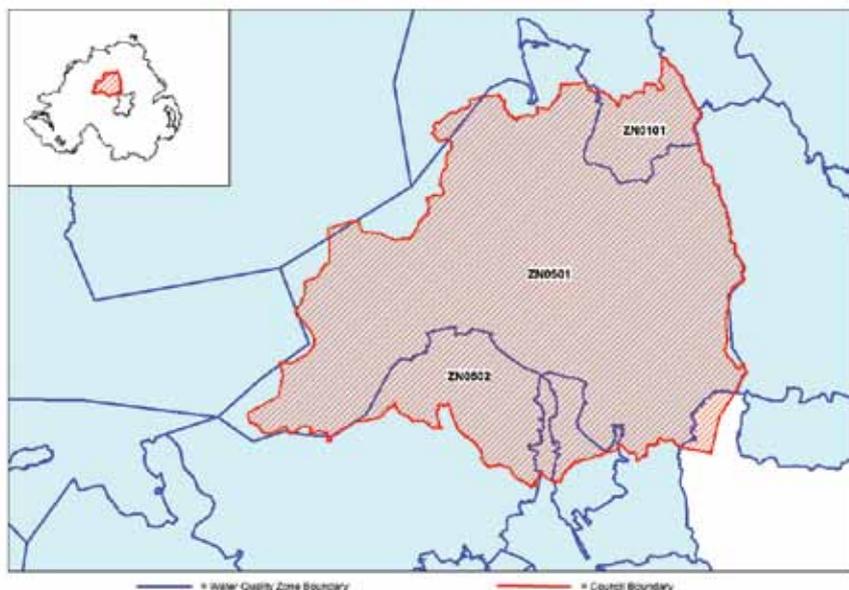
Zone Code	Zone Name	Zone Code	Zone Name
ZN0401	Dunore Point Antrim	ZS0503	Forked Bridge Stoneyford
ZS0501	Drumaroad Lisburn	ZS0601	Drumaroad Ballynahinch
ZS0502	Forked Bridge Dunmurry	ZS0802	Castor Bay Lurgan

2012 water quality Capital Works Programmes affecting the council area:

High Priority Watermains Phase 2 Work Package
 Lisburn North Rural Phase 2 Watermain Improvements
 Magheralave Road, Lisburn, Watermain
 Major Incident Mitigation Project East Region Freeze Thaw Improvements
 Major Incident Mitigation Project South Region Freeze Thaw Improvements
 Service Reservoir Enhanced Security Phase 2
 Strategic Link - Castor Bay to Belfast
 Water Mains Rehabilitation, New and Replacement
 WTW Effluent Quality

As can be seen from the Watermains Rehabilitation Framework map at the start of this section, much of the Lisburn council area has targeted work packages in place to improve the quality of water at customer tap. This ongoing work will continue to maintain and improve the quality of water in the council area over the next few years.

Magherafelt District Council



Mean Zonal Compliance (MZC)

	2010	2011	2012
Overall Northern Ireland MZC	99.8%	99.8%	99.8%
Magherafelt Council MZC	99.9%	99.8%	99.9%

2012 water supply zones wholly or partially within the council area:

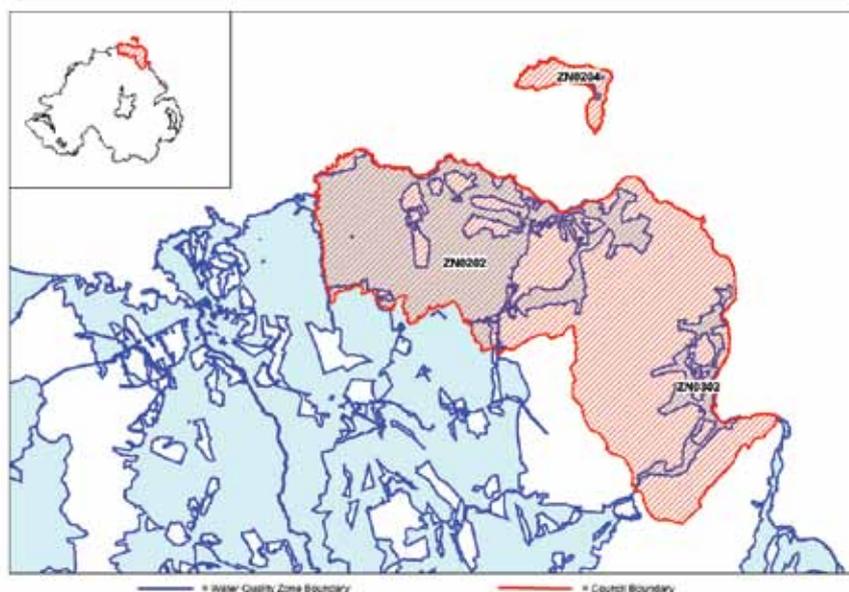
Zone Code	Zone Name	Zone Code	Zone Name
ZN0101	Ballinrees Coleraine	ZN0502	Lough Fea Cookstown
ZN0501	Moyola Magherafelt		

2012 water quality Capital Works Programmes affecting the council area:

High Priority Watermains Phase 2 Work Package
 Major Incident Mitigation Project Central Region Freeze Thaw Improvements
 Moyola Zone Watermain Improvements
 Service Reservoir Enhanced Security Phase 2
 Water Mains Rehabilitation, New and Replacement
 WTW Effluent Quality

The ongoing Watermains Rehabilitation Framework will continue to maintain and improve the quality of water in the Magherafelt council area over the next few years.

Moyle District Council



Mean Zonal Compliance (MZC)

	2010	2011	2012
Overall Northern Ireland MZC	99.8%	99.8%	99.8%
Moyle Council MZC	99.6%	99.9%	99.9%

2012 water supply zones wholly or partially within the council area:

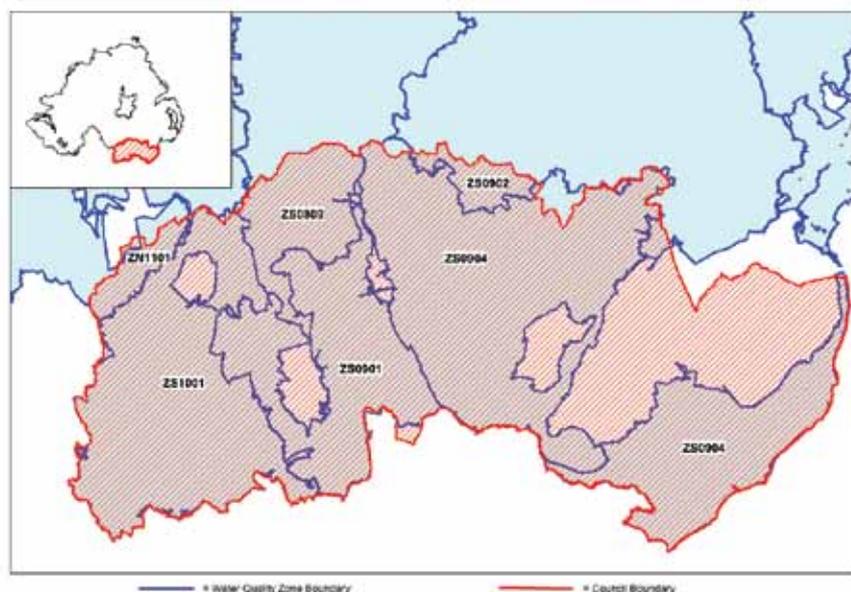
Zone Code	Zone Name	Zone Code	Zone Name
ZN0101	Ballinrees Coleraine	ZN0204	Rathlin Island
ZN0202	Altnahinch Bushmills	ZN0302	Dungonnell Glarryford

2012 water quality Capital Works Programmes affecting the council area:

- High Priority Watermains Phase 2 Work Package
- Major Incident Mitigation Project North Region Freeze Thaw Improvements
- Monaclogh SR Capacity Extension
- Moyola Zone Watermain Improvements
- Service Reservoir Enhanced Security Phase 2
- The Glens Zone Watermain Improvements
- Water Mains Rehabilitation, New and Replacement
- WP134 High Priority Water Mains Phase 1
- WTW Effluent Quality

The ongoing Watermains Rehabilitation Framework will continue to maintain and improve the quality of water in the Moyle council area over the next few years.

Newry & Mourne District Council



Mean Zonal Compliance (MZC)

	2010	2011	2012
Overall Northern Ireland MZC	99.8%	99.8%	99.8%
Newry & Mourne Council MZC	99.8%	99.9%	99.8%

2012 water supply zones wholly or partially within the council area:

Zone Code	Zone Name	Zone Code	Zone Name
ZN1101	Clay Lake Keady	ZS0902	Fofanny Dromore
ZS0809	Castor Bay Dungannon	ZS0904	Fofanny Mourne
ZS0901	Camlough Newry West	ZS1001	Carran Hill Crossmaglen

2012 water quality Capital Works Programmes affecting the council area:

Ballintemple Zone Watermain Improvements	Moygannon Road Warrenpoint Water Main Extension
Ballydougan to Newry Main Link Reinforcement	Newton Villas, Rostrevor, Foul Sewer Extension
Crieve Service Reservoir	Service Reservoir Enhanced Security Phase 2
Enhanced Site Security	Tullyhappy Service Reservoir
High Priority Watermains Phase 2 Work Package	Water Mains Rehabilitation, New and Replacement
Lough Ross Zone Watermain Improvements	WP101 Newry Phase 2
Major Incident Mitigation Project South Region	WP134 High Priority Water Mains Phase 1
Freeze Thaw Improvements	WTW Effluent Quality
Mourne Coast Zone Watermain Improvements	

As can be seen from the Watermains Rehabilitation Framework map at the start of this section, much of the Newry and Mourne council area has targeted work packages in place to improve the quality of water at customer tap. This ongoing work will continue to maintain and improve the quality of water in the council area over the next few years.

Newtownabbey Borough Council



Mean Zonal Compliance (MZC)

	2010	2011	2012
Overall Northern Ireland MZC	99.8%	99.8%	99.8%
Newtownabbey Council MZC	99.9%	99.8%	99.8%

2012 water supply zones wholly or partially within the council area:

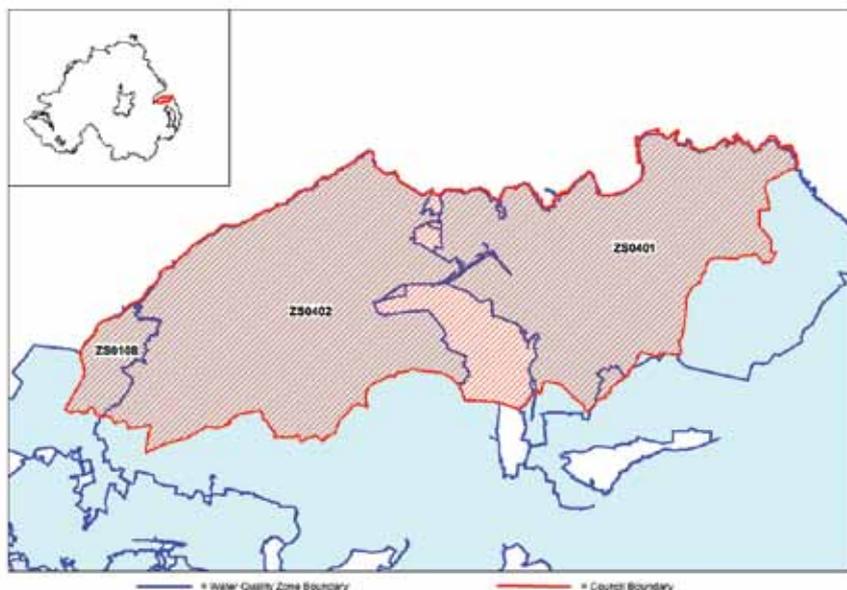
Zone Code	Zone Name	Zone Code	Zone Name
ZN0401	Dunore Point Antrim	ZS0109	Dorisland Whiteabbey
ZN0402	Killylane Ballynure	ZS0110	Dunore Point Glengormley
ZS0106	Dunore Belfast North		

2012 water quality Capital Works Programmes affecting the council area:

Ballywonard Zone Watermain Improvements
 Bryantang Brae, Doagh, Watermain Extension
 High Priority Watermains Phase 2 Work Package
 Killylane Dunore East Phase 1
 Major Incident Mitigation Project East Region Freeze Thaw Improvements
 McVeigh's Well Rationalisation of Pipework
 Newtownabbey Zone Watermain Improvements Phase 1
 Newtownabbey Zone Watermain Improvements Phase 2
 Service Reservoir Enhanced Security Phase 2
 Water Mains Rehabilitation, New and Replacement
 WTW Effluent Quality

As can be seen from the Watermains Rehabilitation Framework map at the start of this section, much of the Newtownabbey council area has targeted work packages in place to improve the quality of water at customer tap. This ongoing work will continue to maintain and improve the quality of water in the council area over the next few years.

North Down Borough Council



Mean Zonal Compliance (MZC)

	2010	2011	2012
Overall Northern Ireland MZC	99.8%	99.8%	99.8%
North Down Council MZC	99.8%	99.9%	99.9%

2012 water supply zones wholly or partially within the council area:

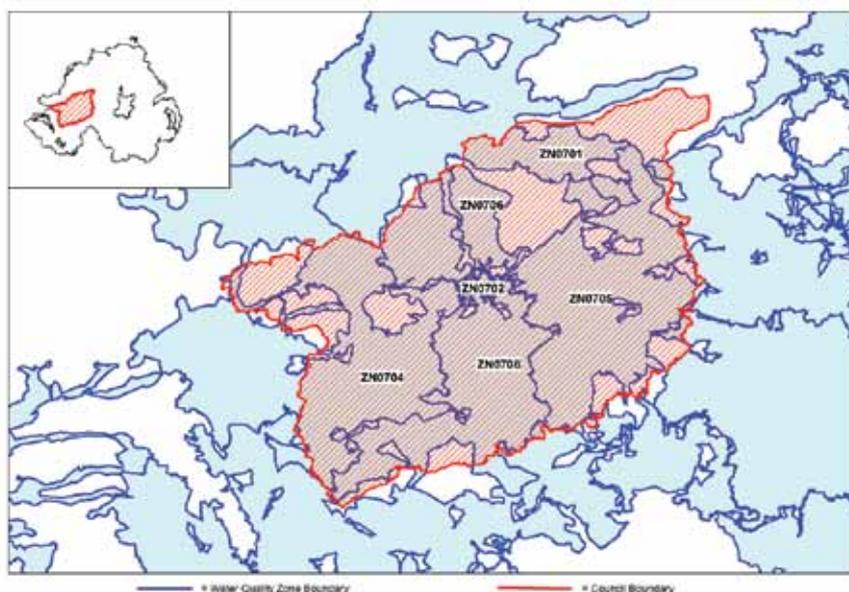
Zone Code	Zone Name	Zone Code	Zone Name
ZS0108	Belfast Purdysburn	ZS0402	Drumaroad Comber
ZS0401	Drumaroad Bangor		

2012 water quality Capital Works Programmes affecting the council area:

High Priority Watermains Phase 2 Work Package
 Major Incident Mitigation Project East Region Freeze Thaw Improvements
 North Down Bangor Phase 2 Watermain Improvements
 North Down Strategic Trunk Watermains
 Service Reservoir Enhanced Security Phase 2
 Water Mains Rehabilitation, New and Replacement
 WTW Effluent Quality

The ongoing Watermains Rehabilitation Framework will continue to maintain and improve the quality of water in the North Down council area over the next few years.

Omagh District Council



Mean Zonal Compliance (MZC)

	2010	2011	2012
Overall Northern Ireland MZC	99.8%	99.8%	99.8%
Omagh Council MZC	99.9%	99.8%	99.7%

2012 water supply zones wholly or partially within the council area:

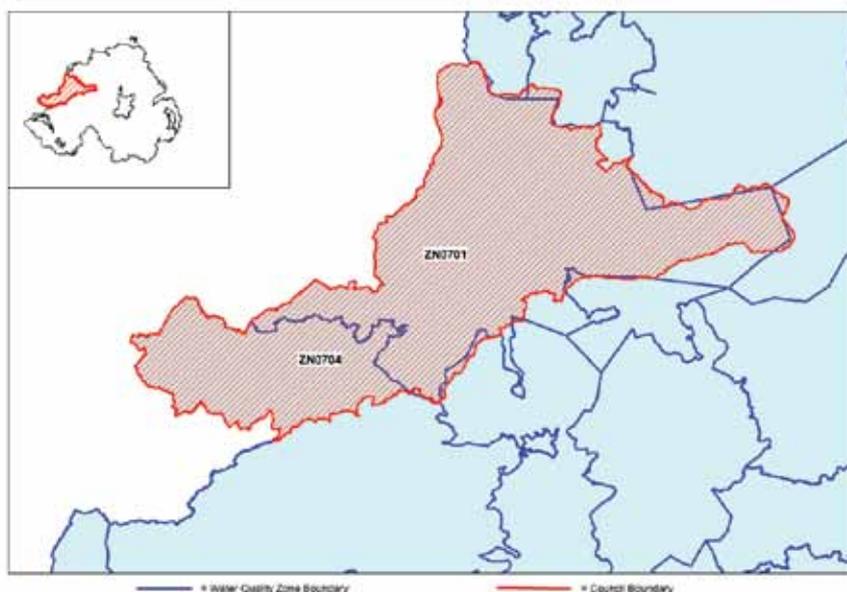
Zone Code	Zone Name	Zone Code	Zone Name
ZN0502	Lough Fea Cookstown	ZN0705	Lough Macrory Beragh
ZN0701	Derg Strabane	ZN0706	Lough Macrory Killyclogher
ZN0702	Glenhordial Omagh	ZN0802	Killyhevlin Enniskillen
ZN0704	Lough Bradan Drumquin		

2012 water quality Capital Works Programmes affecting the council area:

Alleyhill Zone Watermain Improvements	Omagh Watermain Improvements
Carrigans Rd, Newtownstewart	Service Reservoir Enhanced Security Phase 2
High Priority Watermains Phase 2 Work Package	Strule Intake For Derg WTW
Killyhevlin to Lough Bradan Link Watermain	Tullywhisker to Newtownstewart Link Main
Lough Bradan WTWs Upgrade	Water Mains Rehabilitation, New and Replacement
Major Incident Mitigation Project West Region	WP134 High Priority Water Mains Phase 1
Freeze Thaw Improvements	WTW Effluent Quality

As can be seen from the Watermains Rehabilitation Framework map at the start of this section, much of the Omagh council area has targeted work packages in place to improve the quality of water at customer tap. This ongoing work will continue to maintain and improve the quality of water in the council area over the next few years.

Strabane District Council



Mean Zonal Compliance (MZC)

	2010	2011	2012
Overall Northern Ireland MZC	99.8%	99.8%	99.8%
Strabane Council MZC	99.7%	99.7%	99.7%

2012 water supply zones wholly or partially within the council area:

Zone Code	Zone Name	Zone Code	Zone Name
ZN0701	Derg Strabane	ZN0704	Lough Bradan Drumquin

2012 water quality Capital Works Programmes affecting the council area:

Alleyhill Zone Watermain Improvements	Major Incident Mitigation Project West Region
Ash Ave Strabane replacement Watermain	Freeze Thaw Improvements
Carmony to Strabane Strategic Link Watermain	Service Reservoir Enhanced Security Phase 2
Carrigans Rd, Newtownstewart	Strule Intake For Derg WTW
High Priority Watermains Phase 2 Work Package	Water Mains Rehabilitation, New and Replacement
Major Incident Mitigation Project North Region	WP134 High Priority Water Mains Phase 1
Freeze Thaw Improvements	WTW Effluent Quality

With only 2 water supply zones used for Strabane Council's compliance assessment, deterioration in a single zone has a very large perceived effect on the water quality calculation. During 2012 there were a number of failures associated with Lough Bradan WTW whilst a planned upgrade was slightly delayed. In addition to this, due to the nature of random sampling there may be fluctuations in water quality across the water supply zones in a council area which may temporarily reduce the calculated compliance.

The Lough Bradan WTW upgrade as well as the treatment optimisation at the Derg WTW combined with the Watermains Rehabilitation Framework work packages will continue to maintain and improve the quality of water in the Strabane council area over the next few years.

Appendix 4

Water Quality Events

Significant Drinking Water Quality Events in 2012

Date of Significant Event	Area and Estimate of Population / Properties Potentially Affected	Nature and Cause of Significant Event	Associated Council Area(s)
26 January 2012	Killylane WTWs (47,000 population)	Filter breakthrough led to aluminium contraventions in the final water.	Antrim, Ballymena, Carrickfergus, Larne and Newtownabbey
7 January 2012	Caugh Hill WTWs (73,500 population)	Treatment difficulties caused by problems with the waste water recovery system and exacerbated by a non-functioning monitor led to a turbidity contravention in the final water.	Derry, Limavady and Strabane
21 & 22 January 2012	Lough Fea WTWs (29,500 population)	Problems with the pH adjustment process caused treatment difficulties and led to aluminium contraventions in the final water and related supply area.	Cookstown, Dungannon & South Tyrone, Magherafelt and Omagh
24 January 2012	Rathlin WTWs (120 population)	A turbidity contravention occurred after surface water ingress to the borehole during a period of heavy rainfall.	Moyle
09 August 2011 to date	Gelvin Road, Dungiven	Significant recurring iron contraventions at a number of properties from 2 to 63 Gelvin Road. This section of main is scheduled to be replaced in July / August 2013.	Limavady
13 February 2012	Lough Fea WTWs (29,500 population)	Problems with the pH adjustment process caused treatment difficulties and led to an aluminium contravention in the final water.	Cookstown, Dungannon & South Tyrone, Magherafelt and Omagh
15 March 2012	Rathlin WTWs (120 population)	Inadequate disinfection occurred after the failure of chlorine dosing equipment. Manual chlorine boosting was carried out to maintain chlorination though the distribution system while repairs were carried out.	Moyle
21 – 24 March 2012	Dungonnell WTWs (33,000 population)	A malfunction in the coagulant dosing system caused loss of effective treatment. There were aluminium, iron and THM contraventions in the final water.	Antrim, Ballymena, Ballymoney, Magherafelt and Moyle
21 May – August 2012	Seagahan WTWs (30,000 population)	Heavy periods of rainfall led to increased pesticide levels in the raw water supply due to run off from the catchment area. Lack of adequate pesticide removal treatment led to persistent MCPA and Mecoprop contraventions in the final water. GAC filters on site were refurbished with virgin carbon for pesticide removal.	Armagh, Dungannon & South Tyrone and Newry & Mourne
11 June 2012	Killyhevin WTWs (62,000 population)	Filter breakthrough led to the presence of Cryptosporidium Oocysts in the final water. Additional testing carried out showed that the oocysts were not viable.	Dungannon & South Tyrone, Fermanagh and Omagh
14 & 15 June 2012	Ballinrees WTWs (104,500 population)	An operational change to the raw water abstraction point led to manganese contraventions in the final water. This issue has now been rectified to prevent similar occurrences.	Ballymoney, Coleraine, Limavady, Magherafelt and Moyle

Date of Significant Event	Area and Estimate of Population / Properties Potentially Affected	Nature and Cause of Significant Event	Associated Council Area(s)
15 & 16 June 2012	Bonneytober SR (820 properties)	Coliform bacteria were detected at the service reservoir and in the related supply area. The reason for the exceedance at the service reservoir was undetermined. The exceedances in the distribution system were most likely due to contamination from internal plumbing at the properties.	Larne
20 June –24 July 2012	Dorisland WTWs (123,000 population)	Heavy periods of rainfall led to increased pesticide levels in the raw water supply due to run off from the catchment area. Lack of adequate pesticide removal treatment led to three MCPA contraventions in the final water. Additional treatment facility for pesticide removal is to be delivered through the PC13 period.	Belfast, Carrickfergus, Larne and Newtownabbey
20 June 2012	Killyhevlin WTWs (62,000 population)	Heavy periods of rainfall led to increased pesticide levels in the raw water supply due to run off from the catchment area. Lack of adequate pesticide removal treatment led to an MCPA contravention in the final water. The refurbishment of all 6 filters was completed in August 2012 and 100% optimised with Virgin Carbon installed.	Dungannon & South Tyrone, Fermanagh and Omagh
23 – 25 June 2012	Spring Hill, Glenarm (21 properties)	Coliform bacteria and E. coli were detected following contamination of the mains which occurred during the installation of a new section of main.	Larne
25 June 2012	Derg WTWs (35,500 population)	Heavy periods of rainfall led to increased pesticide levels in the raw water supply due to run off from the catchment area. Lack of adequate pesticide removal treatment led to an MCPA contravention in the final water.	Derry, Omagh and Strabane
25 June 2012	Lough Fea WTWs (29,500 population)	Heavy periods of rainfall led to increased pesticide levels in the raw water supply due to run off from the catchment area. Lack of adequate pesticide removal treatment led to an MCPA contravention in the final water.	Cookstown, Dungannon & South Tyrone, Magherafelt and Omagh
29 June 2012	Glenhordial WTWs (29,500 population)	A PLC fault resulted in problems with the coagulant dosing system which caused loss of effective treatment. The supply of water into distribution was stopped until treatment was restored and therefore there were no water quality exceedances associated with this event.	Dungannon and South Tyrone, Fermanagh, Omagh and Strabane
9 July – October 2012	Carran Hill WTWs (11,000 population)	Increased pesticide levels in the raw water supply due to run off from the catchment area. Lack of adequate pesticide removal treatment led to persistent MCPA contraventions in the final water.	Armagh and Newry & Mourne
11 - 14 July 2012	Killylane WTWs (47,000 population)	A rapid increase in raw water colour following a period of extreme heavy rainfall caused treatment difficulties. This resulted in an aluminium contravention in the final water.	Antrim, Ballymena, Carrickfergus, Larne and Newtownabbey
23 July 2012	Caugh Hill WTWs (49,500* population)	Increased pesticide levels in the raw water supply due to run off from the catchment area. Lack of adequate pesticide removal treatment led to Linuron and Total Pesticide contraventions in the final water. There have been no further detections of Linuron at the site.	Derry, Limavady and Strabane
24 July – December 2012	Clay Lake WTWs (7,500 population)	Increased pesticide levels in the raw water supply due to run off from the catchment area. Lack of adequate pesticide removal treatment led to Metoxuron and MCPA contraventions in the final water. Clay Lake WTW is currently being upgraded and will include GAC filters for pesticide removal.	Armagh and Newry & Mourne
15 November 2012	Lough Bradan Drumquin Water Supply Zone (19,000)	Treatment difficulties at Lough Bradan WTWs resulted in THM contraventions in the related supply area for approximately two months. CPEO issued by the Drinking Water Inspectorate in December 2012.	Dungannon & South Tyrone, Fermanagh, Omagh and Strabane

Date of Significant Event	Area and Estimate of Population / Properties Potentially Affected	Nature and Cause of Significant Event	Associated Council Area(s)
31 July – 28 August 2012	Ballinrees WTWs (104,500 population)	Increased pesticide levels in the raw water supply due to run off from the catchment area. Lack of adequate pesticide removal treatment led to MCPA contraventions in the final water.	Ballymoney, Coleraine, Limavady, Magherafelt and Moyle
2 – 8 August 2012	Glenhordial WTWs (29,500 population)	An increase in manganese levels in the raw water led to manganese contraventions in the final water before treatment was optimised.	Dungannon and South Tyrone, Fermanagh, Omagh and Strabane
13 – 24 August 2012	Altnahinch WTWs (28,000 population)	Problems with the pH adjustment process caused treatment difficulties and led to aluminium contraventions in the final water and related supply area.	Ballymena, Ballymoney, Coleraine and Moyle
1 September 2012	Altnahinch Bushmills Water Supply Zone (28,000)	Treatment difficulties at Altnahinch WTWs led to a THM contravention in the related supply area.	Ballymena, Ballymoney, Coleraine and Moyle
10 September 2012	Church Hall, Glarryford (Single Property)	A "Do Not Use Tap Water For Drinking or Cooking" notice was issued following a significant odour contravention. This was an isolated event at one property only caused by reduced flow and turnover in an old cast iron main which was being taken out of supply following mains rehabilitation in the area and properties being transferred onto the new main.	Ballymena
13 September – 2 October 2012	Caugh Hill WTWs (73,500 population)	Inadequate coagulation control for removal of organic compounds led to THM contraventions in the final water.	Derry, Limavady and Strabane
13 September 2012	Derryhennet Road, Armagh (5 Properties)	Significant iron and turbidity contraventions occurred due to the condition of an old iron main. Forwarded for inclusion in the mains replacement programme.	Armagh
16 September 2012	Ballyhagan Road, Maghera (Single property)	A "Boil Water Before Use" notice was issued to a single property after two coliform bacteria contraventions. No obvious cause for the exceedances was determined and the water supply to the property was found to be bacteriologically satisfactory.	Magherafelt
08 October 2012	Ballyportery Road, Dunloy (2 Properties)	Significant iron and turbidity contraventions occurred due to the condition of an old iron main. The main was replaced in December 2012.	Ballymoney
16 October 2012	Dunore Point Glengormley Zone (1,500 properties)	A bromate contravention was reported. After investigation by NI Water a cause was not determined.	Antrim, Belfast and Newtownabbey
29 October 2012	York Park, Belfast (1 property)	There was media interest in a lead contravention after the consumer expressed concern at the delay in receiving the notification from NI Water.	Belfast
1 November 2012	Caugh Hill WTWs (73,500 population)	A monitor fault resulted in problems with the coagulant dosing system which caused loss of effective treatment and led to a turbidity contravention.	Derry, Limavady and Strabane
13 November 2012	Cahard/Drumgiven Roads, Ballynahinch (50 properties)	Odour contraventions occurred in customer complaint samples following operational leakage detection work by NI Water. This operational activity caused a temporary reversal of flow in an old section of mains.	Down

* Although normally supplied by Caugh Hill WTWs, Creggan Derry zone was supplied by Carmoney WTWs at this time.

22 November 2012	Dungonnell WTWs (33,000 population)	Treatment difficulties caused by poor optimisation of the coagulation process led to aluminium, iron and turbidity contraventions in the final water.	Antrim, Ballymena, Ballymoney, Magherafelt and Moyle
29 November 2012	Castor Bay WTWs (292,000 population)	A Clostridium perfringens contravention was reported in the final water. After investigation by NI Water a cause was not determined. This event was significant due to the recurring nature of the contravention.	Antrim, Armagh, Banbridge, Cookstown, Craigavon, Dungannon & South Tyrone, Lisburn, Newry & Mourne and Omagh

Minor Drinking Water Quality Events in 2012

Date of Minor Event	Area and Estimate of Population / Properties Potentially Affected	Nature and Cause of Event	Council Area
19 January 2012	Drumroad WTWs (384,000 population)	A coliform bacteria contravention was most likely due to unrepresentative sampling.	Ards, Banbridge, Belfast, Castlereagh, Down, Lisburn, and North Down
13 February 2012	Dungonnell WTWs (33,000 population)	An aluminium contravention in the final water did not affect the related supply area.	Antrim, Ballymena, Ballymoney, Magherafelt and Moyle
5 March 2012	Glenhordial WTWs (29,500 population)	A turbidity contravention was reported due to unrepresentative sampling.	Dungannon & South Tyrone, Fermanagh, Omagh and Strabane
13 March 2012	Rathlin WTWs (120 population)	A turbidity contravention was reported due to unrepresentative sampling.	Moyle
13 March 2012	Drumroad WTWs (384,000 population)	A Clostridium perfringens contravention was reported in the final water. After investigation by NI Water a cause was not determined.	Ards, Banbridge, Belfast, Castlereagh, Down, Lisburn, and North Down
22 March 2012	Dunore Point WTWs (500,000 population)	A Clostridium perfringens contravention was reported in the final water. After investigation by NI Water a cause was not determined.	Antrim, Ards, Ballymena, Ballymoney, Belfast, Castlereagh, Larne, Lisburn, Magherafelt, Moyle, Newtownabbey and North Down
17 April 2012	Drumroad WTWs (384,000 population)	An elevated level of aluminium detected in the final water did not affect the related supply area.	Ards, Banbridge, Belfast, Castlereagh, Down, Lisburn, and North Down
20 April 2012	Castor Bay WTWs (292,000 population)	A Clostridium perfringens contravention was reported in the final water. After investigation by NI Water a cause was not determined.	Antrim, Armagh, Banbridge, Cookstown, Craigavon, Dungannon & South Tyrone, Lisburn, Newry & Mourne and Omagh
30 April 2012	Rathlin WTWs (120 population)	A turbidity contravention was reported due to unrepresentative sampling.	Moyle

Date of Minor Event	Area and Estimate of Population / Properties Potentially Affected	Nature and Cause of Event	Council Area
8 June 2012	Rathlin WTWs (120 population)	Temporary loss of automatic disinfection but manual dosing prevented a significant event.	Moyle
19 July 2012	Drumaroad WTWs (384,000 population)	A Clostridium perfringens contravention was reported in the final water. After investigation by NI Water a cause was not determined.	Ards, Banbridge, Belfast, Castlereagh, Down, Lisburn, and North Down
22 July 2012	Ballinrees WTWs (104,500 population)	A Clostridium perfringens contravention was reported in the final water. After investigation by NI Water a cause was not determined.	Ballymoney, Coleraine, Limavady, Magherafelt and Moyle
25 July 2012	Castor Bay WTWs (292,000 population)	A Clostridium perfringens contravention was reported in the final water. After investigation by NI Water a cause was not determined.	Antrim, Armagh, Banbridge, Cookstown, Craigavon, Dungannon & South Tyrone, Lisburn, Newry & Mourne and Omagh
31 July 2012	Lough Bradan WTWs (38,500 population)	A hydrogen ion contravention in the final water did not affect the related supply area.	Dungannon & South Tyrone, Fermanagh, Omagh and Strabane
11 September 2012	Lough Bradan WTWs (38,500 population)	A hydrogen ion contravention in the final water did not affect the related supply area.	Dungannon & South Tyrone, Fermanagh, Omagh and Strabane
15 October 2012	Dungonnell WTWs (33,000 population)	A Clostridium perfringens contravention was reported in the final water. After investigation by NI Water a cause was not determined.	Antrim, Ballymena, Ballymoney, Magherafelt and Moyle
17 October 2012	Drumaroad WTWs (384,000 population)	A turbidity contravention was reported due to the disturbance of particles in a break pressure tank.	Ards, Banbridge, Belfast, Castlereagh, Down, Lisburn, and North Down
14 November 2012	Dorisland WTWs (123,000 population)	A coliform bacteria contravention was reported in the final water. After investigation by NI Water a cause was not determined.	Belfast, Carrickfergus, Larne and Newtownabbey
29 November 2012	Moyola WTWs (73,000 population)	A Clostridium perfringens contravention was reported in the final water. After investigation by NI Water a cause was not determined.	Antrim, Coleraine, Cookstown and Magherafelt
3 December 2012	Killyhevlin WTWs (62,000 population)	A minor manganese contravention in the final water did not affect the related supply area.	Dungannon & South Tyrone, Fermanagh and Omagh
19 December 2012	Carran Hill WTWs (11,000 population)	A coliform bacteria contravention was reported in the final water. After investigation by NI Water a cause was not determined.	Armagh and Newry & Mourne

Not significant Drinking Water Quality Events in 2012

Date of Not Significant Event	Area and Estimate of Population/ Properties Potentially Affected	Nature and Cause of Not Significant Event	Associated Council Area(s)
30 March 2012	Clay Lake WTWs (7,500 population)	A Clostridium perfringens contravention was reported in the final water. After investigation by NI Water a cause was not determined.	Armagh and Newry & Mourne
11 June 2012	Longland Road, Dunnamanagh (Single Property)	A "Boil Water Before Use" notice was issued to a single property after Coliform bacteria and E. coli were detected. The contravention occurred due to the condition of an internal storage tank. The water supply to the property was satisfactory.	Strabane
12 June 2012	Castor Bay WTWs (292,000 population)	A coliform bacteria contravention was most likely due to unrepresentative sampling.	Antrim, Armagh, Banbridge, Cookstown, Craigavon, Dungannon & South Tyrone, Lisburn, Newry & Mourne and Omagh
24 June 2012	Carran Hill WTWs (11,000 population)	Potential pollution risk at Lough Ross from suspected fuel laundering did not affect the water treatment works.	Armagh and Newry & Mourne
17 July 2012	Camrough WTWs (21,000 population)	A turbidity contravention was reported in the final water. After investigation by NI Water a cause was not determined.	Armagh and Newry & Mourne
24 July 2012	Armaghbrague Road, Armagh (450 properties)	Potential pollution risk after laundered diesel waste was dumped adjacent to a PRV chamber on the distribution water main. The water supply was not affected.	Armagh
12 August 2012	Killyhevlin WTWs (62,000 population)	A turbidity contravention was reported due to unrepresentative sampling.	Dungannon & South Tyrone, Fermanagh and Omagh
6 September 2012	Clay Lake WTWs (7,500 population)	An aluminium contravention was reported due to unrepresentative sampling.	Armagh and Newry & Mourne
26 October 2012	Carmony WTWs (42,500 population)	A turbidity contravention was reported in the final water. After investigation by NI Water a cause was not determined.	Derry, Limavady and Strabane
31 October 2012	Camrough WTWs (21,000 population)	A turbidity contravention was reported in the final water. After investigation by NI Water a cause was not determined.	Armagh and Newry & Mourne

Appendix 5

Water Supply (Water Fittings) Regulations (NI) 2009 Enforcement Policy

NI Water's customer leaflet "Water Fittings Regulations" details why the Water Regulations exist and highlights to customers their obligations under the Regulations. A web page has been set up on the NI Water web site for customers where they can download the regulations, guidance notes, information leaflets and notification forms. Both the leaflets and web pages will provide customers with a valuable insight to and appreciation of what the Regulations will mean to them, and the benefits in protecting drinking water supplies as well as the potential consequences of non-adherence. Customers are advised both online and in leaflets that before they commence certain plumbing installations or alterations they must first notify NI Water in writing, 10 days advance notice is required before work can commence pending approval. NI Water also promotes and advocates the benefits of using approved contractors who are members of the Plumbing Industry Licensing Scheme (PILS) as administered by the trade associated known as the Scottish and Northern Ireland Plumbing Employers Federations (SNIPEF).

NI Water has a dedicated team of 6 front line water regulation inspectors across the province headed by a Field Manager and Senior Engineer.

NI Water has allocated each non-domestic customer a fluid category rating which was derived from Standard Industrial Classification (SIC) codes and also guidance provided by the Water Regulation Advisory Scheme (WRAS). A proactive inspection programme is carried out each year with inspection intervals based on national 'Best Practice' documentation issued to the water authorities by WRAS as accepted by the Department for Environment, Food and Rural Affairs (DEFRA).

The Water Regulation team has systems and processes in place which are used to schedule and report on inspections, repeat inspections, their findings, contraventions and improvement notices. The Regulation team regularly liaises with external customers, scientific services and networks water teams within the company regarding compliance and non-compliance with the regulations. The team also liaises with other GB water company regulation teams and water industry expert groups to ensure a consistent application of the Regulations is evident in Northern Ireland.

NI Water will only consider applying to the Regulator (WPD) for a relaxation of requirements in exceptional circumstances and not as a result of failure or lack of due diligence by customers to comply with their legal obligations under the Regulations.

NI Water Customer Base

Base Data, using NIAUR June return figures:

Description	Number
*Total number of connected properties	817,960
*Total number of new connections from 1st April 2012 to 31st March 2013	4349

* Information source Annual Information Return 2013

Enforcement Data

Staff and Training

Number of staff involved in enforcement.

Description	Number
Spending more than 75% of time	7
Spending between 50% and 75% of time	0
Spending between 5% and 10% of time	1

All Water Regulation team members including line management will have attended one or more of the courses detailed below and attained qualifications as certified by the training organisations or award body. As a minimum all Regulation enforcement staff is expected to have passed the C&G in Water Regulations for enforcement staff, any change of staff will be conditional on new team members undertaking and passing the Water Regulation C&G qualification.

- C&G in Water Regulations for Enforcement staff
- Introduction into RPZ installation
- C&G L8 legionella course

Promotion of the Regulations

As a fully subscribing member of WRAS and part owner NI Water has representation on the WRAS Board, Technical Committee and Technical Support Group national forums which meet at least 3 times per year.

NI Water uses WRAS for advice on the interpretation of the Regulations where unusual installations are discovered or where a dispute with an installer/manufacturer occurs regarding the particular meaning of a certain regulation. Participation on this national stage ensures that NI Water like other water suppliers is applying the Regulations consistently across its customer base. It also provides a very useful networking forum where NI Water and other water suppliers can field difficult and complex questions and receive comprehensive and timely feedback.

A Water Regulation web page is available on the company web site (www.niwater.com) for both Domestic and Non-Domestic customers to refer to. The site contains Regulation specific background information, leaflets in PDF format and customer notification forms. A Water Regulation company e-mail has also been provided to facilitate customer enquiries.

Notifications

Description	Number
*Total No. of water connection application forms received between 1st Jan 2012 - 31st Dec 2012	5672
Total number of written customer notifications other than those associated with new connections applications.	5
**Total No. of new connections made between 1st April 2011 – 31st March 2012	4411

*Calendar year

**Financial year

In most cases customers must notify NI Water in advance of installing or making changes to the water systems within their premises. Owners, occupiers and plumbing installers must get approval from NI Water by giving advance notice in writing of their intentions. Advance notification forms can be obtained from the NI Water web site, completed and returned to the address detailed on the form. The list of work that cannot commence without advance notification can be obtained by referring to the Water Regulations and are detailed under Regulation 5. NI Water will not unreasonably withhold consent for any work but it may be granted subject to conditions, which must be followed. If customers do not hear from us within 10 working days of writing to us, consent is deemed to have been given and work may proceed.

Approved Contractors Scheme

NI Water recommends that customers use an approved plumbing contractor when installing, altering or repairing plumbing systems, water fittings and water using appliances. Owners and occupiers of premises and anyone who installs plumbing systems have a legal duty to ensure their systems satisfy the requirements of the Water Supply (Water Fittings) Regulations (Northern Ireland) 2009.

NI Water recommends customers use approved plumbing contractors who are members of the Scottish and Northern Ireland Plumbing Employers Federation (SNIPEF) Plumbing Industry Licensing Scheme. To find a SNIPEF Licensed Plumber in your area simply enter your postcode or town on their web site

www.needaplumber.org or contact SNIPEF on **0845 224 0391**.

An approved plumbing contractor will certify that his or her work meets the requirements of the Regulations and any subsequent breaches associated with their work is the legal responsibility of the plumber and not you, as the owner or occupier.

Description	2010-2011	2011-2012	2012-2013
No. of members in SNIPEF	759	770	749
No. of members in Northern Ireland.	87	81	71
No. of members in Northern Ireland who are also members of the Plumbing Industry Licensing Scheme (PILS).	75	71	63
No. of members in Northern Ireland awaiting approval as approved members of the Plumbing Industry Licensing Scheme.	12	10	8

Inspections (Other than those arising from Notification)

As anticipated in the previous years' annual return; inspections, contraventions, notifications, repeat visits and enforcement notifications have considerably increased in 2012 compared with 2011.

Description	Number
*Total number of Domestic and Non-Domestic Inspections completed in 2012	997
*Total number of Contraventions recorded	2440
*Total number of Contraventions rectified	1015
*Total Number of outstanding contraventions	1425

* 2012 Calendar year

Contraventions found on all property types are various, they range from:

- storage cisterns having the wrong type of Air Gap fitted
- overflows running to waste in non-visual areas
- dead legs on pipe-work
- the requirement to install servicing valves at float valves
- insulation and labelling of pipe-work
- cross connections between private water supplies (Bore Wells) and NI Water supplies within private premises
- rain water harvesting systems not being installed in compliance with British Standards and the Regulations.

Enforcement Actions

NI Water through its enforcement activities has a graduated process of engaging customers. Appointment letters are issued to customers and these are followed by inspection report findings which may include recommendations or improvement notices. Customers are given an adequate period of time to comply with notices depending on the level of risk to water supplies associated with the contravention. Failure to comply with these requests will generate further repeat inspections and notifications; where these requests are not complied with then a non-compliance report is forwarded to the NI Water legal team for appropriate action. No legal referrals are outstanding in the reporting year.

Disputes

No formal disputes were referred to arbitration within the reporting year. There was however one key account customer who engaged NI Water in relation to an interpretation of whole site protection requirements and definitions. This has now been concluded to both parties satisfaction.

General Information

Assessed number of high risk premises connected to the NI Water distribution network (i.e. Class 4 and 5 Fluid Category (FC)).

There are Circa 40,000 FC4&5 premises across Northern Ireland, NI Water inspected 644 of these premises during the reporting year.

Number of Reactive Water Regulation inspections attributed to water quality incidents and NI Water observations.

Date	Address
Jan-12	Food Processing Plant, Belfast
May-12	Petrol Station Co. Antrim
Jun-12	Farm, Co. Londonderry
Aug-12	Farm, Carryduff
Sep-12	Farm, Co. Tyrone
Oct-12	Concrete plant, Belfast
Oct-12	Private Residence, Co. Londonderry
Nov-12	Engineering firm, Co. Down
Nov-12	Private Residence, Co. Antrim
Nov-12	Business Premises, Co. Londonderry
Nov-12	Restaurant, Belfast
Dec-12	Car Wash, Co. Armagh

In addition to proactive inspections the Water regulation team also undertook reactive inspections as a result of water quality concerns following sample failures. The reactive inspections were carried out following requests for assistance from NI Water staff.

The team also conducts occasional reactive inspections as a result of concerns or requests for assistance from customers and colleagues.

Action taken by NI Water

Reports are submitted to NI Water scientific and operational teams, copies are available from NI Water upon request. Customers are required to take remedial action to provide whole site protection and are given Water Regulation compliance advice.

Reporting Year Recap

Since the formation of NI Water and the introduction of the new Water Regulations in August 2009 NI Water has in the last reporting year:

- Further updated the NI Water, Water Regulation web page and literature necessary for the enforcement of the regulations and customer compliance guidance.
- Provided a facility on the company web site for customers to locate their nearest approved plumbing contractor as registered through SNIPEF (www.needaplumber.org).
- Contributed specialist advice for inclusion in the winter preparation campaign. NI Water attended 2 conferences to provide a customer insight into compliance with the Regulations.

Looking Forward

- Further develop processes and documentation relating to Water Regulation inspections and enforcement;
- Liaise with NI Water legal team regarding the implementation of a compliance framework;
 - NI Water is participating with other GB water suppliers facilitated by WRAS and Water UK in producing a National Enforcement Policy. This overarching policy when finalised will necessitate water companies making their enforcement policies available upon request or through their web sites.
- NI Water will continue to promote at every appropriate opportunity the general awareness of the Regulations to customers through suitable public and professional interfaces;
- Continue to participate and benefit from the attendance and participation on the various WRAS forums;
- Continue to assist SNIPEF in the governance of the approved plumbing contractor's scheme as well promotional opportunities to raise plumbing standards in Northern Ireland.
 - NI Water plans to build a closer relationship and interaction with the local Northern Ireland branch committee of SNIPEF.
- NI Water through WRAS is providing for the creation of a National Organisation which will be known as WaterSafe. WaterSafe will be an umbrella organisation encompassing several approved contractor schemes (including SNIPEF) and will help water customers across the UK in finding an approved contractor through National branding.
- Continuous improvement and refinement of Water Regulation reports as output from the Connect 2 inspection and reporting software application.

Appendix 6

Glossary of Technical Terms

Aesthetic	Associated with the senses of taste, smell and sight.
Authorised Departure (AD)	A time limited authorised departure from the regulatory limit for certain parameters, provided that there is a planned programme of work at the water treatment works to improve the water quality and that there are no adverse health implications.
Authorised Supply Point	A sampling point within the distribution system authorised by the DWI for certain parameters, because the results of the analysis of such samples are unlikely to differ in any material respect from the results of the analysis of samples taken from customers' taps.
Catchment	The area of land that drains into a watercourse.
Chloramination	An alternative form of disinfectant, based on chlorine and ammonia, which provides a longer lasting residual disinfectant in the distribution system compared to free chlorine.
Coagulation	The process of aggregating colloidal and fine particulate matter into a settleable material.
Coliforms	A group of bacteria which may be faecal or environmental in origin.
Compliance assessment	A comparison made by the DWI of data (gathered by NI Water) against standards and other regulatory requirements.
Contravention	A breach of the regulatory requirement.
CPEO	'Consideration of Provisional Enforcement Order' - first stage in DWI enforcement process.
Cryptosporidiosis	The illness produced by infection with Cryptosporidium.
Cryptosporidium	A protozoan parasite.
Determination	A single analytical result for a specific parameter.
Distribution systems	NI Water's network of mains, pipes, pumping stations and service reservoirs through which treated water is conveyed to customers.
Drinking Water Directive	European Council Directive (98/83/EC) relating to the quality of water intended for human consumption.
DWI	Northern Ireland Drinking Water Inspectorate - has an independent responsibility to audit drinking water quality compliance against the standards set in the Regulations.
DWSP	'Drinking Water Safety Plan' Based on a comprehensive risk assessment and risk management approach to all the steps in a water supply chain.
EO	'Enforcement Order' – third stage in DWI enforcement process.
Event	A situation affecting or threatening to affect drinking water quality.
Exceedance	Synonym for contravention (see above).
Faecal coliforms	A sub-group of coliforms, almost exclusively faecal in origin.
Filtration	The separation of suspended particulate matter from a fluid.
GPS	Global Positioning System – a satellite based location system which will give an accurate record of position.

Groundwater	Water from aquifers or other underground sources.
Hydrogen ion	A measure of the acidity or basicity related to the concentration of the hydrogen ion (also referred to as pH).
Incident	An event where there has been a demonstrable deterioration in the quality of drinking water.
Investment programme	Investment in improvement works to water treatment works and distribution systems.
LIMS	Laboratory Information Management System – the system used by NI Water to record and audit the results of the hundreds of thousands of samples collected each year.
Mains rehabilitation	Restoration or replacement of water mains pipework to a proper condition.
MCPA	MCPA is a selective hormone-type herbicide, which is absorbed by the leaves and to some degree the roots.
Mean Zonal Compliance	The assessment of water quality at a parameter level based on water supply zones.
Microbiological	Associated with the study of microbes.
m³/d	Cubic metres per day.
mg/l	Milligrammes per litre.
µg/l	Microgrammes per litre.
ml	Millilitre.
MI/d	Megalitres per day (one MI/d is equivalent to 1,000 m ³ /d or 220,000 gallon/d).
Oocyst	The resistant form in which <i>Cryptosporidium</i> occurs in the environment, and which is capable of causing infection.
Orthophosphoric acid	A chemical dosed in low concentrations at water treatment works to minimise the uptake of lead from old pipework into customers' water.
PAHs	A group of organic compounds known as polycyclic aromatic hydrocarbons, comprising, for the purposes of the Regulations, four substances: benzo(b)fluoranthene, benzo(k) fluoranthene benzo(ghi)perylene and indeno (1,2,3-cd) pyrene,
Parameter	A parameter is any substance, organism or property listed in the regulations.
Pathogen	An organism which causes disease.
PCV	See 'Prescribed concentration or value'.
PEO	'Provisional Enforcement Order' – second stage in DWI enforcement process.
Pesticides	Any fungicide, herbicide or insecticide or related product (excluding medicines) used for the control of pests or diseases.
Plumbosolvency	The tendency for lead to dissolve in water.
Prescribed Concentration or Value	The numerical value assigned to water quality standards (PCV), defining the maximum or minimum legal concentration or value of a parameter. In certain circumstances, the DWI may authorise a time limited departure from the regulatory value. See 'Authorised Departure'.

Protozoan parasites	A single celled organism that can only survive by infecting a host.
Public register	The information made available by NI Water to the public as required by regulation 34.
Regulations	The Water Supply (Water Quality) Regulations (Northern Ireland) 2010
Remedial action	Action taken to improve a situation.
Service reservoir (SR)	A water tower, tank or other reservoir used for the storage of treated water within the distribution system.
SIC Code	Standard Industrial Classification Code – used for Water Fittings Regulations
Springs	Groundwater appearing at the surface at the outcrop of the junction of an impermeable stratum.
Surface water	Water from rivers, impounding reservoirs or other surface water sources.
Technical audit	The means of checking by the DWI that NI Water is complying with its statutory obligations.
Toxicology	The study of the health effects of substances.
Treated water	Water treated for use for domestic purposes as defined in the Regulations.
Trihalomethanes (THMs)	A group of organic substances comprising, for the purposes of the Regulations, four substances: trichloromethane (also known as chloroform), dichlorobromomethane, dibromochloromethane and tribromomethane.
UKAS	The sole national accreditation body recognized by government to assess, against internationally agreed standards, organisations that provide certification, testing, inspection and calibration services.
Utility Regulator	The Northern Ireland Authority for Utility Regulation (NIAUR).
WPD	DRD Water Policy Division. Deemed to be the Regulator for all activities associated with the Water Supply (Water Fittings) Regulations (NI) 2009.
WRAS	The Water Regulation Advisory Scheme. A list of Standard Industrial Classification codes with related fluid categories used to define categories of non-domestic properties.
Water Regulations	The Water Supply (Water Fittings) Regulations (NI) 2009.
Water Safety Plan	A means of ensuring that a water supply is safe for human consumption based on a comprehensive risk assessment and risk management approach to all the steps in a water supply chain from catchment to tap.
Water supply zone (Zone)	The basic unit of supply for establishing sampling frequencies, compliance with standards and information to be made publicly available.
Website	Location of information on the Internet. NI Water's website is: www.niwater.com
Wholesomeness	A concept of water quality which is defined by reference to standards and other requirements set out in the Regulations.

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